Colorado WIC Program

Nutrition Risk Manual

COLORADO
Department of Public Health & Environment

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COLORADO
Department of Public Health & Environment

Colorado WIC High Risk Counselor Orientation Checklist

Name of Employee: _____
Date of Hire: _____
Supervisor/Trainer: _____
Training Plan Completion Date: _____

Directions: All newly hired WIC employees are required to complete the New Employee Orientation Checklist for Level I and Level II. Electronically document and track each new employee's progress in completing Level I and Level II in Compass, as required. Instructions, modules and activities can be found on the Colorado WIC website under Agency Resources>New Employee Training at: http://www.coloradowic.com. This checklist contains additional training activities that may be helpful for a new WIC high risk counselor. Use this checklist for your records.

- ❑ Colorado WIC Level I completed on: _____
- ❑ Colorado WIC Level II completed on: _____

Activity	Completion Requirements	Date of Completion	Trainer Signature
HR Counselor Recommended Training Activities	**Completion date TBD by Supervisor/Trainer**		
Review Colorado WIC Program Nutrition Risk Manual	*Read entire manual; review with supervisor/trainer*		
Review Colorado Formula Guide • Read the Ward Road Ordering Process for LA	*Review manual; discuss with supervisor/trainer*		
Review Colorado WIC Program Manual • Specifically review: Eligibility, Clinic Procedures, NE/BF sections	*Complete review of Program manual sections as listed.*		
Recommended Video			
Special Formulas Webinar for HR Counselors	*Complete entire video; review with supervisor/trainer*		

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Colorado WIC Program Nutrition Risk Manual

All WIC participants are at nutritional risk, but some participants are at a greater risk than others for poor nutrition-related health outcomes. “High risk” in WIC designates participants that have a nutrition risk that puts them at higher risk and for whom individualized counseling by the WIC High Risk Counselor is required.

The purpose of this manual is to provide information for WIC High Risk Counselors to more effectively counsel high risk participants. Included in this manual are the following:

Section 1:

- WIC High Risk Counselors Overview - qualifications, roles, duties and high-risk identification
- Documentation – SOAP note writing and NCP documentation
- Counseling approaches & goal setting
- Referrals
- Prescriptive formula and food
- Breastfeeding
- Compass Reports
- Confidentiality of WIC participant data
- Mandatory Reporting

Section 2:

- Colorado WIC Nutrition Risk Factors (NRFs)
- Table of High Risk NRFs

I. WIC High Risk Counselors Overview – Qualifications, Roles, Duties and High Risk Identification

a) Qualifications

- Because WIC is a nutrition program, the job of the WIC High Risk Counselor is ideally held by a Registered and/or Licensed Dietitian (RD) approved by the Commission on Dietetic Registration. When a Registered/Licensed Dietitian is not available, an individual with a Bachelor of Science degree in a nutrition-related field may function as the WIC High Risk Counselor with State approval.
- Individuals with the following qualifications also qualify to perform the duties of the WIC High Risk Counselor: Licensed Physicians (MD) (licensed by the Colorado Medical Board to practice in the State of Colorado), Physician’s Assistants (PA) (licensed by the Colorado Medical Board to practice under supervision of a physician in the State of Colorado), Registered Nurses (BSN or RN licensed to practice in the State of Colorado).

Experience: Experience in an ambulatory care, public health, or clinical setting

Education: Minimum of a Bachelor of Science degree from an accredited university with major studies in foods and human nutrition or in nursing.

Possible Titles:

- Nutritionist
- Registered and/or Licensed Dietitian
- Community and/or Public Health Nutritionist
- Community and/or Public Health Nurse
- WIC High Risk Counselor
- Physician's Assistant
- Physician

b) Role of the WIC High Risk Counselor

The WIC High Risk Counselor's role, as it relates to high-risk participants, is to utilize clinical knowledge and judgment in developing the participant's nutrition care plan. This includes providing in-depth education and, when necessary, making referrals and communicating with other health professionals. She accomplishes these roles in ***three ways:***

i) Counsels all high-risk participants at least once during the certification period.

- Many high-risk participants present a complicated array of medical problems or conditions. The WIC High Risk Counselor performs a thorough nutrition assessment, by questioning and probing into each condition or problem presented. She knows how to question, and where/when to seek more information. The WIC High Risk Counselor must strive to establish a level of trust and understanding with the participant so that resulting goals are reasonable and workable to the participant.
- It is also important that the WIC High Risk Counselor recognize those conditions that require specialty care outside the practice limits of the WIC Program. It is not WIC's role to function as part of the participant's primary health care team. When a participant's condition needs treatment beyond the role of WIC (as in conditions such as gestational diabetes, eating disorders, etc.), it is the WIC High Risk Counselor's responsibility to maintain communication with the specialty or primary care provider in order to understand and reinforce the treatment plan established for the WIC participant.

ii) Confers with other healthcare and human service professionals as necessary or as required.

- The WIC High Risk Counselor will encounter situations where referral or consultation with someone outside the WIC Program is essential to providing good nutritional care to a WIC participant. The WIC High Risk Counselor has the expertise to properly discern when and from whom she should seek additional assistance. Such contacts can involve the participant's medical provider, drug/alcohol counselor, human services worker, or the State WIC staff, to name a few.
- Issuance of an exempt infant formula and a WIC-eligible medical food is only permitted with a properly completed Colorado WIC Program's Physician Authorization Form or a physician's prescription and the WIC High Risk Counselor's approval of the prescription prior to issuance. The WIC High Risk Counselor works in partnership with the physician to provide the formula/product that best meets the participant's needs. The WIC High Risk Counselor reviews the participant record to determine appropriateness of the prescription based off the participant's age, growth, development, symptoms, and diagnosis. The WIC High Risk Counselor contacts the physician, as needed, to discuss concerns about the prescribed formula and/or complementary foods.

iii) Oversees the clinical component

- Providing proper nutritional care to a participant is a shared responsibility between the WIC High Risk Counselor and the Educator. It is important that the Educator and WIC High Risk Counselor work together as a team. The Educator should have access to a WIC High Risk Counselor at any time. To achieve consistent care, it is imperative that nutrition-related documentation be complete and timely.

c) Duties of the WIC High Risk Counselor in Clinic

See Program Manual Section XVI: Local Staffing

i) General Statement of Duties:

The WIC High Risk Counselor performs professional and supervisory public health nutrition activities by delivering direct care participant services as well as participating in program planning and evaluation as assigned. In small agencies, this professional may be the same individual as the WIC Director.

Supervision Received:

Works under the supervision of the Local Agency WIC Director or the Agency director (if the WIC High Risk Counselor is the Local Agency WIC Director).

Supervision Exercised:

May supervise the WIC Educator and/or other WIC High Risk Counselors as assigned

ii) Knowledge, Skills and Abilities:

A fully functioning WIC High Risk Professional will need the knowledge, skills, and abilities listed below. In hiring for this position, a supervisor should look for persons possessing the majority of these skills.

- Knowledge of human nutrition in health and disease and its application to public health practices.
- Knowledge of nutrition needs for infants and children and women during the prenatal, postpartum, and breastfeeding stages.
- Knowledge of effective counseling and educational concepts and methods.
- Ability to communicate effectively orally and in writing.
- Ability to establish and maintain effective working relationships.
- Ability to develop and carry out ongoing plans for nutrition education.
- Ability to interpret scientific information for lay audiences.
- Knowledge and understanding of the high risk functions related to the Compass computer system
- Ability to assess nutritional status, design nutritional care plans, and counsel participants toward improved diets with behavior change.
- Ability to promote breastfeeding as the optimal infant feeding choice while allowing participant choice.
- Ability to be understanding and empathetic when dealing with participants.
- Ability to prepare educational materials and prepare and deliver in service trainings.
- Ability to supervise paraprofessional/professional staff as needed to assist the WIC Director/Coordinator.

iii) Responsibilities:

The following responsibilities have been defined by the State WIC Office to ensure a quality WIC Program:

- Interviews participants and makes thorough nutrition assessments by interpreting anthropometrics and laboratory data, health histories, medical diagnoses, physician's orders, eating habits and nutrition practices, diet assessments), and other related factors.
- Develops implements, evaluates, and follows up on participant care plans. Counsels participants and families on nutritional needs with consideration of income, cultural and religious food patterns, home facilities, educational level, and other psycho social factors.
- Maintains participant confidentiality and ensures that participants are treated equally with respect, compassion, and empathy.
- Consults with health care providers on participant's nutritional needs, formula requiring prescription, and health concerns; makes appropriate referrals and follow up.
- Provides appropriate documentation in participant electronic charts, including participant concerns, nutrition assessment, materials provided, nutrition education, referrals, progress toward attaining new behavior change nutrition goals, and follow up plans.
- Counsel all high risk participants at least once during a certification period and within the required time frame.
- Determines follow up care for as long as the participant is considered high risk.
- Authorizes the use of exempt infant formulas, WIC-eligible medical foods, and individual needs for tailoring of WIC food packages.
- Reviews and signs as the authorized certifying professional for WIC Educators who have not completed Level I of the WIC Certification Program.
- Provides nutrition education through individual and/or group instruction to participants, professionals, and community groups.
- Helps orient, train, supervise, and evaluate WIC paraprofessionals, volunteers, and clerical staff as assigned.
- Conducts and/or assists with in service education for staff and professional groups.
- Reviews, evaluates, and/or develops nutrition education materials.
- Participates in Program planning development and evaluation; works on assigned nutrition projects.
- Acts as a resource person for nutrition information.
- Assists with outreach and public relation activities.
- Participates in monitoring electronic charts, paper files, clinic activities, nutrition education, and counseling.
- Participates in continuing education activities; attends meetings, conferences, and workshops; keeps abreast of current nutrition research as it relates to the WIC Program and participants.
- Participates in staff conferences, meetings, in service training, and State meetings.

iv) High Risk Identification and Follow-up

See Program Manual Section IX - Nutrition Education

a) Identification

- At the certification and recertification visits, the assigned nutrition risk factors (NRFs) determine whether a participant is designated high or low risk.

Participants identified as high risk must be scheduled a visit with the WIC High Risk Counselor as per WIC high risk referral protocol. The purpose of the high risk visit is to assess the participant's nutrition risk factor (NRF) status, provide nutrition education/counseling, make referrals, and reinforce the health care provider's nutrition therapy recommendations.

b) Time Requirements for a visit with the WIC High Risk Counselor

★ **Within 30 Days of NRF assignment:**
In most cases, the WIC High Risk Counselor must counsel the high risk participant **within 30 days** from the date of certification/recertification.

Exceptions to the 30-day rule are:

- **Within 24 Hours of NRF Assignment –**
The WIC High Risk Counselor must counsel the high risk participant **within 24 hours from** the time of risk assignment of one or more of the following risk factors. When contact between the endorser/participant and the WIC High Risk Counselor is not possible within 24 hours, the educator refers the participant to the appropriate source of care and notifies the WIC High Risk Counselor.

  - **NRF 135** - Inadequate Growth

    Infant birth to 1 month of age:

    Current weight –

    - Excessive weight loss after birth (Current weight is ≤ 92% of birth weight); or
    - Is not back to birth weight by 2 weeks of age

  - **NRF 372A –** Use of alcohol

    Breastfeeding woman - Routine current use of 2 or more drinks per day or binge drinking

    Pregnant woman – Any current use of alcohol

  - **NRF 372B –** Any current illegal drug use

    Breastfeeding, pregnant and non-breastfeeding woman

  - **NRF 602 –** Breastfeeding Complications or Potential Complications

    Breastfeeding woman with any of the following:

    - Severe breast engorgement
    - Recurrent plugged ducts
    - Mastitis
    - Flat or inverted nipples
    - Cracked, bleeding or severely sore nipples
    - Failure of milk to come in by 4 days postpartum
    - Tandem nursing

    Note: NRF 602 also includes "age 40 years and older," which is low risk and has no requirement for a referral to the WIC High Risk Counselor.

  - **NRF 603 –** Breastfeeding Complication or Potential Complications:

    Breastfed infant with any of the following:

    - Jaundice
    - Weak or ineffective suck

- Difficulty latching onto mother's breast
- Inadequate stooling (for age, as determined by a physician or other health care professional) or less than 6 wet diapers per day.

Initial (24 hour high risk) counseling for NRFs 602 and 603 can be completed by a WIC High Risk Counselor, Educator CLC/IBCLC, or Educator Lactation Management Specialist (LMS). (See ***Note** regarding use of Breastfeeding Peer Counselor LMS/CLC/IBCLC's.)

If initial (24 hour high risk) counseling is provided by:

- WIC High Risk Counselor or Educator CLC/IBCLC:
  - ✓ Document "High Risk Follow up Appointment" on the Nutrition Education panel and complete the participant's care plan.
  - ✓ Provide a phone follow up within two weeks (as best practice).
  - ✓ Refer a participant to a health care provider when warranted.

- WIC Educator LMS:
  - ✓ Document as individual counseling in the participant's care plan.
  - ✓ Schedule a high risk follow up appointment with WIC High Risk Counselor or Educator CLC/IBCLC within two weeks of risk assignment.
  - ✓ Can be conducted via phone or face-to-face, as determined by the clinical judgment of the WIC High Risk Counselor or Educator CLC/IBCLC.
  - ✓ Refer participant to a health care provider when warranted.

***Note: Use of Breastfeeding Peer Counselor LMS/CLC/IBCLC's**
Per local agency discretion, if a High Risk Counselor or Educator LMS/CLC/IBCLC is not available, local agencies may allow Breastfeeding Peer Counselor with advanced training (LM, CLC, or IBCLC's) to address assigned NRFs 602 and/or 603. Initial counseling must be provided in the clinic (not by phone).
(See protocol below)

If initial (24 hour high risk) counseling is provided by:

- Breastfeeding Peer Counselor CLC/IBCLC:
  - ✓ Document counseling in BF PC Documentation panel.
  - ✓ Request WIC Educator mark "High Risk Follow up Appointment" on the Nutrition Education panel and document in the participant's care plan: "BF Complication counseling provided. See BF PC Documentation panel."
  - ✓ Provide a phone follow up within two weeks (as best practice).
  - ✓ Refer participant to a health care provider when warranted.

- Breastfeeding Peer Counselor LMS:
  - ✓ Document counseling in BF PC Documentation panel.
  - ✓ Request WIC Educator document in the participant's care plan: "BF Complication counseling
  - ✓ provided. See BF PC Documentation panel."
  - ✓ Request WIC Educator schedule a high risk follow up appointment with WIC High Risk Counselor or Educator CLC/IBCLC within two weeks of risk assignment. Can be conducted via phone or face-to-face, as determined by the clinical judgment of the WIC High Risk Counselor or Educator CLC/IBCLC.
  - ✓ Refer participant to a health care provider when warranted.

★ **Within 24 hours or 30 days, dependent on if permission to contact the health care provider is granted:** (see below for details)

  - **NRF 201b** – Severely Low Hemoglobin/Hematocrit

Child, pregnant woman, breastfeeding woman and non-breastfeeding woman

When a participant's blood value falls within a range specified in the *Standards for Severely Low Hemoglobin-NRF201b-High Risk Condition* table and permission:

- **has been granted for WIC to contact the health care provider:** Print two *Abnormal Blood Work Notices.* Give one copy of the *Notice* to the endorser/participant. On the second *Notice*, write in the WIC High Risk Counselor's name and contact information and fax or email that *Notice* to the health care provider within 24 hours. Schedule an appointment with the WIC High Risk Counselor within the next 30 days.
- **has not been granted for WIC to contact the health care provider:** Print one *Abnormal Blood Work Notice.* Give the *Notice* to the endorser/participant and urge that it be shared with the participant's health care provider. Also, WIC staff must notify the WIC High Risk Counselor of this abnormal blood value within 24 hours. The High Risk Counselor contacts the participant by telephone within 7 days and schedules a high risk appointment with the participant within the next 30 days.

★ **Within 90 Days of NRF assignment:**

- **NRF 113** – Obese

  Child 2-5 years of age

  ≥ 95th percentile Body Mass Index (BMI)-for-age (standing height only)

c) Subsequent Appointments for High Risk Participants

- A minimum of one education contact with the WIC High Risk Counselor is required per certification period. The WIC High Risk Counselor decides whether the subsequent visits will be with the High Risk Counselor or with the WIC Educator. When a visit with the WIC High Risk Counselor has been scheduled, the Educator does not have the authority to cancel the visit, even when high risk NRFs appear to be resolved.

II. Documentation

- All high risk visits must have a separate nutrition education record entered into the *Nutrition Education* section of Compass (including Nutrition Education Covered topics and Pamphlets provided) and a separate *Participant Care Plan. The WIC High Risk Counselor needs to check the High Risk Follow Up box on the Nutrition Education Panel.*
- The WIC Educator and WIC High Risk Counselor create separate *Nutrition Education* and *Participant Care Plans* when the participant is seen by both staff members on the same day. Examples of two different types of chart notes are listed below – SOAP and NCP. WIC High Risk Counselors may use either format to document their nutrition counseling.
- Breastfeeding Peer Counselors who are WIC LMS/CLC/IBCLC's use the BF PC Documentation panel for NRFs 602 and 603 and place a notation "ASAP BF Complication Counseling provided, See BF PC Documentation panel" in the *Participant Care Plan.*

High Risk Resolved

- Clicking the *High Risk Resolved* check box on the *Risk* panel changes the participant's risk status from high to low risk. The *High Risk Resolved* check box may only be selected when a user incorrectly assigns a high risk nutrition risk factor (NRF) to a participant who, in actuality, is low risk. If two or more high risk NRFs have been assigned and one high risk NRF is assigned in error, do not select this check box as the participant's risk status must remain as high. Only the WIC High Risk Counselor has the authority to check the *High Risk Resolved* check box.

Documentation using SOAP notes

Compass is designed for documentation in the participant care plan using the SOAP format – Subjective, Objective, Assessment, Plan. The data gathered in Compass, and in the Nutrition Interview is automatically incorporated into the appropriate section of the Care Plan. Free form boxes are available for WIC staff to include additional information as necessary. Content for each section of the SOAP note is as follows:

S – Subjective

- Statement of the individual's thoughts and feelings
- Individual complaints, "quotable" significant information, individual's description of his or her problem, individual's statement of needs
- Information gained from taking with the individual, from others working with the individual, or from the individual's relatives
- Dietary intake and reported food habits
- **Compass will import to the Subjective section all information entered in the Nutrition Interview comments/notes**

O – Objective

- Facts, tangible findings, clinical observations, documented information
- Physical findings, signs, symptoms
- Anthropometric data
- Factual information regarding background, history
- **Compass will automatically display participant category, age, adjusted gestational age (if indicated), hemoglobin, length/height, weight, weight gained, weeks gestation or postpartum, and growth percentiles.**

A - Assessment

- Your assessment or impression of the individual's nutritional status, needs, problems; assessment of the overall situation
- Summary and evaluation of dietary intake
- Meaning, value of the information presented
- Information still needed
- Problem definition, interpretation
- **Compass will automatically display all assigned nutrition risk factors**

P - Plan

- What you plan to do to obtain more information and/or educate and treat the individual
- Recommendations and plans for follow-up visits
- Instructions to the educator regarding follow-up care

Use of the Nutrition Care Process (NCP)

The Nutrition Care Process (NCP) is a systematic approach of providing high quality nutrition care, developed by the Academy of Nutrition and Dietetics. The use of the NCP provides a framework for the WIC High Risk Counselor to individualize care, taking into account the patient's needs and values, and using the best evidence available, to make decisions. Most university based dietetic internship programs use this process when training upcoming nutrition professionals for both the clinical and community settings.

The Colorado WIC Program does not require that the NCP be utilized in the local agency clinics. General guidance is provided for those WIC High Risk Counselors that prefer this method of documentation. Many WIC High Risk Counselors and WIC Educators who have not been exposed may encounter documentation in the NCP format following a participant transfer from another WIC agency. The purpose of this guidance is to standardize the documentation and process for consistency across the state.

There are four steps in the process:

1. Nutrition Assessment
    a. Food/Nutrition-Related History
    b. Anthropometric Measurements
    c. Biochemical Data, Medical Tests and Procedures
    d. Nutrition Focused Physical Findings
    e. Client History

2. Nutrition Diagnosis
    a. Purpose: Identifying and describing a specific nutrition problem
    b. Intake: Too much or too little food compared to estimated needs
    c. Clinical: Related to medical or physical condition
    d. Behavioral-Environmental: Knowledge, attitudes, beliefs, etc.

3. Nutrition Intervention
    a. Specific Actions used to Remedy a Nutrition Diagnosis/Problem
        i. Food and/or nutrient delivery

ii. Nutrition Education
iii. Nutrition Counseling
iv. Coordination of Nutrition Care

4. Nutrition Monitoring and Evaluation
   a. Making Progress Towards or has Achieved Goal
   b. Track Patient Outcomes

Nutrition Assessment:
Subjective and objective data is pulled from the Nutrition Interview and other areas of Compass into the Subjective and Objective sections of the Participant Care Plan. Additional assessment data such as physical appearance, swallowing function, appetite, medical history, etc. can be added to the free form text boxes under the Subjective area. Additional assessment data such as biochemical tests, lab data, weeks gestation and other anthropometric measurements can be added to the free form text boxes under the Objective area.

Nutrition Diagnosis:
The NCP typically utilizes a specific format for documentation of a nutrition diagnosis called a PES statement.

P – Problem or Nutrition Diagnosis Label

E – Etiology

S – Signs/Symptoms

The format of the statement is "Nutrition problem label related to_____ as evidenced by _____."

This format can be used and the documentation added in the "Assessment" free form text box of the Participant Care Plan. The Colorado WIC Program does not utilize the International Dietetics & Nutrition Terminology (INDT) coding process for diagnosis purposes.

Nutrition Intervention:
The purpose of the nutrition intervention is to resolve or identify nutrition related problems by planning or implementing appropriate interventions tailored to the participants needs. These interventions can consist of food and/or nutrient delivery, nutrition education, nutrition counseling or coordination of nutrition care. These should be documented in the "Counseling/Education" free form text box in the Participant Care Plan.

Monitoring/Evaluation:
This step involves monitoring, measuring and evaluating the changes in nutrition care indicators to determine progress. High risk WIC participants often follow up with the WIC High Risk Counselor on a regular basis and progress made towards previous goals should be documented in the Assessment section of the Participant Care Plan.

Examples of progress towards previous goals:

- Inadequate prenatal weight gain resolved and nutrition diagnosis no longer exists
- Improvement shown but nutrition diagnosis still exists; client making progress
- No improvement/unresolved
- No longer appropriate; nutrition diagnosis no longer exists because the participant's conditions or situation has changed.

III. Counseling Approaches & Goal Setting

See Program Manual Section IX: Nutrition Education/Breastfeeding Promotion & Support Subject: Nutrition Assessment, Education and Behavior Change Counseling

Participants will be more open to the nutrition education offered and willing to make behavior changes if they can see potential benefit to them or their children. Look for the benefits that motivate the person you're working with.

a. Participant-Centered Care & VENA

To complement the provision of healthy foods, WIC provides nutrition education to guide participants towards a healthier lifestyle and to help them make changes to improve their dietary intake. The provision of nutrition education involves a number of related activities that occur during the WIC appointment such as: completing a nutrition assessment, providing nutrition information, counseling on behavior change, goal setting and follow-up of previous goals. Utilizing a participant-centered approach helps to enhance the effectiveness of these activities.

Participant-centered: the term *participant-centered* refers to having an assessment that takes into account the participant's unique circumstances and perspective. Participant-centered does not mean that the visit should be participant-driven. Instead, WIC staff will direct the visit and follow all protocols while also striving to develop partnerships with participants based on trust and respect.

Value Enhance Nutrition Assessment (VENA): provides WIC nutrition assessment guidance to enhance and ensure the collection and interpretation of accurate and relevant nutrition/health information - the first step in providing targeted and relevant nutrition services to WIC participants.

b. 3-Step Counseling Strategy

1. **ASK** – open ended questions
   - "What have you heard about breastfeeding?"
   - "How are you planning to feed your baby?"
   - "Tell me about your child's eating habits."

   Probe by
   - Extending – asking her to tell you more
     - "What else have you heard about that, Margie?"
     - "Could you tell me a little more about that?"
   - Clarifying – clarify what she just said
     - "When you say ____, do you mean_____?"
   - Reflecting – acknowledging you understand
     - "So you think your mother would disapprove?"
     - "So you're saying he's pretty possessive of you?"
   - Redirecting – moving participant to a difference subject
     - "Margie, what other concerns do you have about starting your baby on solid foods?"
     - "Christy, besides your concern about drinking beer and nursing, is there anything else that bothers you about it?"

2. **Affirm feelings** – acknowledge what you're hearing and reassure feelings.
   - "I've heard a lot of women say that."
   - "That's a pretty common reaction."
   - "I felt that way, too"
   - "My mother told me the same thing"
   - "Many women go through a period like that after the baby is born."

3. **Educate**
   - Carefully target information to the concern uncovered in Step 1
   - Educate in repeated conversations
   - Feed information to participants in small bite
   - Help participants participate in the learning process.

c. Appreciative Inquiry (AI)

See Nora's video, handouts on the website

Be a "Success Detective" - Learn tools and techniques to positively engage your participants and help set them up for success. Review Nora's video and handouts to learn more.

d. Goal Setting

Goal setting is an important component of behavior change counseling because it encourages the participant to put into action something that was discussed during the appointment. Consistent with the fact that participants are in different stages of change, the goals set with participants will differ depending on their stage of change. For participants in early stages of change, appropriate goals are ones that help to raise awareness or encourage the participant to think through the pros and cons of change. Examples of goals that are appropriate for early stages are to simply read over educational material, to talk to a spouse or to think about what it would look like to make a specific change. These goals may not seem very ambitious; however they are realistic and consistent with moving someone through the early stages of change. As the participant becomes more committed to making a change, appropriate goals will be ones that are more action oriented. For example, the goal may be to have the participant take small steps toward making the behavior change.

When setting goals with participants it is important to remember these principles:

- Goal setting should be done interactively with the participant. WIC staff's role is to suggest ideas for goals that might be appropriate for the participant's stage of change. It is the participant's role to make the decision about what they are able and willing to do.
- Goals should be specific. A clearly stated goal is easier to follow.
- Write down the goal (perhaps on a handout) as a reminder after they leave the appointment.

- *Documentation* - Document the goal in the Participant Care Plan. The goal should be described clearly so that WIC staff can easily follow up on the goal with the participant at the next appointment.

- *Follow up* **-** Since behavior change is a process, it is important to follow up at the next visit by asking the participant about their progress in achieving their goal. Offer praise for any efforts they have made and provide support as appropriate. It may be necessary to adjust the goal to make it more doable. Following up on goals helps to increase the participant's accountability, provides opportunities for support and problem solving, and demonstrates to the participant that WIC cares about helping them make changes. Document follow up discussion(s) about goals in either the Subjective or Assessment portion of the Participant Care Plan.

e. Consulting and Contacting Health Care Providers

The WIC High Risk Counselor will encounter situations where referral or consultation with health care providers (HCP) is essential to providing good nutritional care to a WIC participant.

Situations where consultation with the medical provider is needed:

- Follow-up on Physician Authorization Forms (PAFs): The WIC High Risk Counselor approves or denies the physician prescribed formula/product. The WIC High Risk Counselor reviews the participant record to determine appropriateness of the prescription based off the participant's age, growth, development, symptoms, and diagnosis. The WIC High Risk Counselor contacts the physician, as needed, to discuss concerns about the prescribed formula and/or complementary foods.
- Verbal approval of formula/product prescription: If the PAF is filled out incorrectly by the health care provider, the high risk WIC counselor can obtain verbal confirmation over the phone and then fax a PAF to the provider to sign and return. In those situations, the high risk WIC counselor often completes the form before faxing to the medical provider for his/her signature.
- When a participant is risked for *Severely Low Hemoglobin-NRF201b* and permission **has been granted for WIC to contact the health care provider,** the high risk counselor must fax a copy of the *Abnormal Blood Work Notice* to the medical provider, and provide high risk counseling to the participant within the next 30 days. The high risk WIC counselor should use his or her professional judgment whether or not additional contact and follow-up with the medical provider is needed.
- Any time the high risk WIC counselor has concerns that need immediate medical intervention or supervision.

Tips on contacting health care providers follow:

- If possible, introduce yourself to HCPs frequently used by LA WIC participants.
- Provide local OB-GYNs, midwifery's and pediatrician clinics with current WIC eligibility guidelines and outreach information.
- Obtain the backline phone numbers for the health care providers WIC High Risk Counselors frequently contact. Calling the provider directly is the most efficient way to obtain PAF authorization.
- Check with the provider on the method of communication he/she prefers best. For time-sensitive issues (i.e.: PAF authorization), calling the provider directly and obtaining a verbal order is the most efficient method of communication.
- Providing the ECOP Referral letter to the health care provider or to participants to share with their HCP will help to maintain consistent messaging when a WIC participant is considered high risk relating to overweight/obesity or excessive prenatal weight gain.

IV. Prescription Formula and Foods – Please reference the *Formula Guide or the Program Manual* and review the following sections. Check off as you complete.

- ☐ Review *Assignment of Food Packages* *(See Program Manual Section VIII – Clinic Procedures Program Manual)*
- ☐ Review the *Formula Guide* Table of Contents. This Guide will be referenced often.
- ☐ View the *Use of Exempt Infant Formula in WIC Client Care video* Review the *Formula Guide Product List and the Formula Classification & Issuance sections for classification and issuance information*.
- ☐ Review the Policies for Prescription Formulas *(See Program Manual Section VIII: Clinic Procedures; Subject: WIC Food Packages – Infants)*
- ☐ Learn how to use the Physician Authorization Form and Ordering Instructions. *(See Program Manual Section VIII: Clinic Procedures; Subject: WIC Food Packages - Prescription-Required Formula & Medical)*
- ☐ Review the Policy: *Ordering Instructions for Products Not on Retail Shelves.* *(See Program Manual Section VIII: Clinic Procedures Subject: WIC Food Packages)*

This entails how to order from Ward Road Pharmacy and how to issue Food Instruments (FI's) for special formulas and WIC-eligible medical foods.

- ✓ *Formula Guide: Maximum monthly amount of formula authorized by Colorado WIC*
- ✓ *Infant Formula Ranges Cheat Sheet* for allowed in and out-of range amounts for partially breastfed infants.
- ✓ *Ward Road Pharmacy Ordering Guide* for packaging, ordering instructions by can or case, flavors, etc.

☐ Read "Determining Nutritional Needs" section in the *WIC Formula Guide*.

☐ Read "Formula Mixing Instructions" in the *WIC Formula Guide*.

V. Breastfeeding - *(See Program Manual Section IX: Nutrition Education/Breastfeeding Promotion & Support)*

a) The core competencies of staff as defined by USDA include:

- Recognize own beliefs and attitudes regarding breastfeeding and the impact of those beliefs and attitudes on WIC participant decisions.
- Know the benefits of breastfeeding for baby, mother, family, and society, and apply to daily clinic activities.
- Self-identity as part of the WIC "Team" that promotes, protects, and supports the breastfeeding relationship.
- Understand how the WIC food packages for the breastfeeding dyad support breastfeeding.
- Understand how to assist mothers to overcome common barriers to initiation of, exclusive and continued breastfeeding.
- Develop rapport and foster open dialogue to successfully communicate with pregnant women and mothers.
- Identify factors that can impact breastfeeding during the prenatal assessment process.
- Identify physiological factors that impact breastfeeding.
- Understand optimal breastfeeding practices that help mothers initiate and maintain breastfeeding.
- Recognize common breastfeeding concerns and protocols for obtaining additional assistance for mothers.
- Assist employed women with tailored strategies for continuing to breastfeed after returning to work.
- Apply knowledge of lactation to supporting breastfeeding in varied situations.
- Understand the role of clinic and community support for breastfeeding.

b) Lactation Management Specialist (LMS)

In general, WIC staffs become Lactation Management Specialists (LMS) by attending a Colorado WIC training specifically designed to equip staff with the knowledge to counsel women and infants with the breastfeeding potential complications risk factor. **All WIC High Risk Counselors are required to become LMS through this or a similar training such as Certified Lactation Counselor or Certified Breastfeeding Educator training.** Educators and breastfeeding peer counselors (BF PC) are invited to participate in the training and must successfully pass a test and observations of participant interactions to become LMS. WIC staffs who are Internationally Board Certified Lactation Consultants are not required, but recommended to attend, the LMS training, regardless of their WIC title (WIC High Risk Counselor, educator, BFPC).

Liability
To ensure participants receive the appropriate care, staff providing breastfeeding pumps or aids must be adequately trained to provide participants with the appropriate information and follow up. Procedures must be in place to make certain participants receive instruction on proper pump assembly, usage, cleaning, and storage, and their responsibilities for handling and returning loaned breastfeeding equipment.

The risk of liability requires that the WIC High Risk Counselor and/or staff trained in lactation management coordinate the issuance of pumps to participants.

c) WIC Breast Pumps, Breastfeeding Aids, and Issuance Guidelines – *(See Program Manual Section IX: Nutrition Education/Breastfeeding Promotion & Support; Subject: Breast Pumps and Breastfeeding Aids)*

Issuance Guidelines for Breast Pumps and Breastfeeding Aids

Pumps/aids should be provided to WIC postpartum participants based on individual need and requested support, not as an inducement to consider or to continue breastfeeding. To ensure cost effectiveness and maternal self sufficiency, local agencies must provide instruction on hand expression to all lactating mothers (written materials and instructional videos are available). Most women find hand expression helpful to relieve normal engorgement or to handle situations when they are without their infant and need to express milk.

Generally, pumps/aids are provided to mothers who are having difficulty establishing or maintaining an adequate milk supply due to maternal/infant illness; mother/infant separation (such as hospitalization or a return to work or school); or maternal temporary breastfeeding problems, such as severe engorgement. Experts suggest that providing pumps to all breastfeeding women regardless of need may have the unintended effect of discouraging breastfeeding. This practice may give breastfeeding women the impression that special equipment is needed to express milk and, thus, reinforce inadequacy and contribute to a lack of confidence.

Indications for Use and Guidelines for Issuance of Breast Pumps

i. Guidelines for Hospital Grade (Heavy Duty) Electric Pumps

Most women, in normal circumstances, can breastfeed to one year or beyond without pumping their breast milk. However, some women need to use a breast pump to maintain lactation or to relieve a medical problem. Because there may be a limited number of hospital grade electric pumps, priority is given to mothers who have a medical need or a breastfeeding challenge to maintain her milk supply, such as:

- ✓ Infants with an ineffective suck or unable to nurse because of prematurity; respiratory or cardiac problems affecting endurance; disorders of the oral or gastrointestinal structures
- ✓ Latch on problems/breast rejection
- ✓ Mastitis/breast infections
- ✓ Mother on medication contraindicated for breastfeeding
- ✓ Separation from infant (i.e., mother or infant hospitalized)
- ✓ Mother of multiples
- ✓ Mother returning to work or school
- ✓ Acute engorgement not resolved with standard treatment (i.e., increased feedings, warm soaks, manual expression)
- ✓ Severely sore or cracked nipples
- ✓ Infants with breast milk jaundice
- ✓ Abrupt weaning

Note: This list is not inclusive of all potential breastfeeding challenges and, therefore, the conditions for which a pump is loaned are left up to the discretion of the WIC High Risk Counselor or staff trained in lactation management.

ii. Guidelines for Single-user (Personal) Electric Pumps

Single-user electric pumps are available for breastfeeding mothers who need help maintaining milk supply and who have expressed genuine interest in breastfeeding exclusively for a goal of one year (use WIC Breast Pump Questionnaire to aid in decision making.) The two primary goals of this type pump issuance are:

- ✓ To help WIC mothers maintain adequate breast milk production so that no formula is needed for the infant.
- ✓ To reduce the time and cost of WIC staff to follow up on loaned pumps for lower risk situations.

A mother receiving the single-user pump must already have a well-established milk supply. The following circumstances may warrant issuance of this type of pump:

- ✓ Mothers who are separated from their infant for at least 6 consecutive hours on a regular basis for reasons such as returning to work or school or sharing custody of an infant. The separation would require having to pump an average of at least twice a day.
- ✓ Mothers of multiple infants.
- ✓ Mothers of infants with physical or neurological impairment such as weak suck, uncoordinated suck/swallow pattern, inability to suck, or inability to latch on to the breast.

Mothers are candidates for a single-user pump if they will receive the exclusively breastfeeding food package and no formula from WIC at the time of pump issuance. The single-user pump will typically not be issued to a mother who is already receiving formula for her infant. The exceptions may be a mother of multiples, where one infant receives formula and the other doesn't, or an infant with a medical condition that requires a supplement and the mother intends for her milk to be the primary source of nutrition for her young infant. If a mother reports offering formula, either from WIC or another source, offer to loan her an electric or pedal pump instead of the single-user pump.

Contact your nutrition consultant if you have additional questions about whether or not to issue a single-user pump.

- ✓ Additional Information for Issuing the Single-User Pumps
- A single-user pump cannot be issued to a mother who currently borrows a WIC electric loaned pump.
- A single-user pump can be issued upon return of the loaned WIC electric pump if the mother meets the single-user pump issuance criteria listed above.
- If appropriate, staff should encourage mothers who receive the pump to offer their employer or a school administrator a Breastfeeding Support Letter (available from WIC Materials Order Form). The letter is to acknowledge the worksite/school's ability to support the mother's need to regularly express, collect, and store her milk.
- If a mother has been issued a single-user pump and later requests formula supplementation, staff must refer the participant to the WIC High Risk Counselor or staff trained in lactation management for counseling. The WIC staff will discuss with the mother her reasons for wanting to supplement with formula to determine if supplementation is the best solution to her need or if other support can be provided. If the infant is to receive formula, staff must follow the guidelines for breastfed infants listed in the Colorado WIC Program Manual, Clinic Procedures section. The mother should be encouraged to continue using the pump for as long as it is supportive.

- A mother who receives a single-user pump should not receive another pump for a future infant unless there are special circumstances warranting an exception to this guideline. The expectation is that the pump could be used with her next infant.
- The mother should be encouraged to keep her pump. Remind mothers that the pumps are for **one user** only and should not be resold, or even intended to be sold, lent, or shared with others. The pump has an internal diaphragm that cannot be removed, replaced, or fully sterilized. Each single-user pump should be labeled with a "not for resale" and "single-user only" statement (e.g., written with a permanent marker on the bottom). Provide written information about the risks to sharing breast pumps. Mothers can receive an additional collection kit with future WIC infants.

iii. Guidelines for Pedal Pumps

The pedal pump is an ideal low-cost alternative for women who are frequently or occasionally separated from their infants. The pump may be loaned for the following reasons:

- ✓ Mothers, for whom an electric breast pump is indicated, but have no access to an electric pump or electricity.
- ✓ Women who work or go to school
- ✓ Women who are frequently or occasionally separated from their infants.

iv. Guidelines for Manual Pumps

The Colorado WIC Program provides two types of manual pumps: one-handed and two- handed. Women who desire a pump for convenience or to help alleviate a minor problem may benefit from a manual pump, for reasons such as:

- ✓ Normal engorgement
- ✓ Occasional separation from baby for social events, meetings, etc
- ✓ Working less than 20 hours a week/ or in school with a flexible schedule.

v. Allowable and Non-Allowable Pumps/Aids

When a local agency chooses to purchase breast pumps or aids with WIC funding these must be listed under "Allowable Pumps/Aids."

Allowable Pumps/Aids	Non-Allowable Pumps/Aids
• Electric breast pumps	• Battery operated or mini-electric pumps
• Pedal breast pumps	• Breast shields
• Collection kits for electric or pedal breast pumps	• Nursing pads
• Manual breast pumps	• Nursing bras
• Breast shells	• Topical creams, ointments, vitamin E, other medicinal
• Nursing supplementers (e.g., SNS)	• Foot stools
	• Infant pillows
	• Nursing blouses
	• Carrying bags

a. WIC Breast Pump Standard Visit Protocols - (See page 7 of the Nutrition Education Counseling Guide General Information Section)

1. Complete BF Equipment panel, scan ID, obtain signature.
2. Client must read and sign and take a paper copy of the Breast Pump/Aid Release Form.
3. Demonstrate how to assemble, use and clean/sterilize the breast pump/parts (can use video/DVD).
4. Explain safe handling and storage of human milk.
5. Manual expression of breast milk.
6. Develop a pumping plan based on mother's individual situation.
7. Borrowing/sharing pumps
8. Who to call for help/questions
9. Refer to RD/RN/LMS for Breastfeeding Complications.
10. Refer high risk to RD/RN for counseling. If RD/RN not available, provide general counseling and pamphlets (if appropriate) and schedule with RD/RN within one month.
11. Provide referrals as needed.
12. Assist participant in setting goals.
13. Issue FIs.
14. Schedule next appointment.
15. Document nutrition education including:
    - ✓ Completion of Nutrition Education noting nutrition education covered and pamphlets provided.
    - ✓ Completion of Care Plan noting participant goal(s), plan (if indicated) and any additional client comments, follow-up on previous goals and referrals, assessment, counseling provided.

b. **Breast Pump Order and Issuance Forms —** *(See Program Manual Section IX: Nutrition Education/Breastfeeding Promotion & Support; Subject: Breast Pumps and Breastfeeding Aids)*

- *Ordering*
  Local agencies order pumps through a centralized ordering process at the State WIC Office. Pump orders are processed quarterly (January, April, July, and October). Local agency WIC representatives fax or email their Medela Breast Pump Order Form/ Confirmation of Goods Received (see pages following this section) to the State WIC Office on or before the due date outline in the quarterly reminder email sent to LA pump representatives. Approval by the local agency WIC director is necessary to process the order. This form is included on the CO WIC Program Materials Order Form. Breast pumps and kits will be shipped directly to the local Program.

- *Tracking and Inventory*
  Local Agencies maintain a serialized inventory of the following loaned breast pumps in the Compass computer system;
  - ✓ Hospital Grade (Lactina Select, Lactina Plus) Electric Pumps
  - ✓ Hospital Grade (Symphony) Electric Pumps
  - ✓ Pedal Pumps

  Upon receipt of breast pumps and other items, inspect them for damaged boxes, ensure correct type and quantity. Once the type and quantity are verified, sign the Order Form and fax it to the State WIC Office. This verification is necessary before the State WIC Fiscal Officer pays the supplier.

  Local agency WIC staff affixes an asset tag to the types of pumps listed above and on the cases for tracking purposes. The asset tag includes a unique identifying number and the State WIC telephone number. Request asset tags from the State WIC Fiscal Officer. Affix a label on each electric and pedal pump and electric pump case stating who to contact if the pump is found. The

WIC agency's name, address, and telephone number should be included on the label. Mailing labels work well sealed with packing tape.

In Compass, add each new pump to the clinic's pump inventory in the Serialized Inventory section under Operations. When entering a pump into the clinic's pump inventory, enter the serial number provided by the manufacturer for Lactina and Symphony pumps. Because Pedal pumps do not have a serial number, enter the asset tag number.

PUMP/AID LOAN LOG

Agency _____ Clinic _____

Type of Pump/Aid _____ (if electric, serial #) _____

Date Issued	Date Returned	Person Issuing	Participant's Name, ID and Phone #	Reason for Issuance	Reason Returned	Follow-up Dates	Expected Return Date	Additional Comments

J:\WICCommon\FORMS\#98 Pump/Aid Loan Log

<u>Participants with an electric pump who transfer to another local WIC agency</u>

The goal is for mothers to have access to an electric pump when it is her main means of building/maintaining a milk supply. The preferred situation when a mother transfers agencies is for the mother to return the pump to the original clinic and for staff to work with the new clinic staff to be ready to provide the same type of pump when the mother arrives. This provides ease for tracking and inventory in Compass. However, if the mother transfers to a new clinic and doesn't return the pump, the new clinic should provide a replacement pump and return the originating agency's pump to the clinic where it was issued. This requires some effort to arrange for the pump to be transported or mailed to the original clinic.

Electric pumps are costly. Careful attention must be given to maintaining, securing, and the inventorying all equipment. All electric pumps not on loan must be kept in a locked cabinet or locked room at the clinic.

c. Issuance Criteria

Electric pumps should only be loaned to participants who have demonstrated they are reliable and who you would be able to locate if necessary (e.g., they keep appointments; they are not frequently changing their residence).

i. Procedures for Issuing Pumps/Aids

- WIC staff should use the Breast Pump Questionnaire (order from WIC Materials Order Form) when working with participants to determine the best pump for their situation. (The Breast Pump Questionnaire/Key is a tool to help staff determine if a pump is needed and, if so, to help identify the most appropriate type, i.e., manual, pedal, loaned, or given an electric). Staff must document the type of pump issued and reason for issuance in the *BF Equipment* panel in Compass.
- WIC staff trained in lactation management must demonstrate how to assemble, use, disassemble, and clean the breast pump/aid (this includes manual, pedal, electric pumps and any aid offered), and explain and provide written instructions on safe handling and storage of expressed breast milk to the pump recipient. Pedal pumps have instructional booklets that must remain with the pump. The collection kits for the electric pumps have an information sheet that must accompany the pump. For the electric pump, a video/DVD demonstrating its use is available (in English and Spanish) and can be reviewed in the clinic and/or loaned with the pump.
- Each participant must read the State's Breast Pump/Aid Release Form (see copy following breast pump policies) and sign the signature pad assuming responsibility before leaving the clinic with any type of pump/aid. If unable to capture a signature on the pad, scan the State's Breast Pump/Aid Release Form into Compass or keep a copy in a central file. A copy of the Breast Pump/Aid Release Form should be provided to the participant with the return date and who to contact with questions.

ii. ***Special instructions for issuance of loaned pumps (hospital grade electric and pedal) (serialized inventory)***

- All loaned pumps are considered serialized inventory.
- Complete the *Breastfeeding Equipment* panel for each participant who is loaned a breast pump.
- To assist agencies in tracking electric and pedal breast pumps, it is imperative that staff log each pump's loan status, including the return date, the date returned, and at least two alternative contacts, including name, phone number, and address in Compass on the *Breastfeeding Equipment* panel.
- The period of time a breast pump is loaned should be individualized and monitored closely. The participant should be contacted within 24-72 hours of pump issuance and regularly thereafter to determine if there are any questions on how to use the pump and to determine if there is continued need for the pump. Depending on the situation for which a pump was needed (e.g., severely cracked nipples, infant with poor weight gain), the WIC High Risk Counselor or staff trained in lactation management may need to contact some women with breastfeeding problems within 24 hours to provide support and to ensure milk transfer is occurring. Follow up should occur as frequently as necessary thereafter until the problem is resolved. Follow up should be documented in the Compass *Participant Care Plan.*
- If the pump is kept longer than the expected return date, the WIC High Risk Counselor or staff trained in lactation management should review the need and if applicable, update the return date in Compass on the *Breastfeeding Equipment* panel and document follow up in the *Participant Care Plan.* Because of the limited number of pumps, pumps used solely for medical problems should be returned as soon as the need is resolved.

- Participants should be contacted on a monthly basis to assess their pump needs. The contact date on the *Breastfeeding Equipment* panel should be updated each month for the following month. The *Breastfeeding Equipment Due* report in Compass can be used to track loaned pumps. Pumps are visible on the report if the due date/next contact date is the current month or past due.
- When a pump/aid is returned, record the date and the reason for return (e.g., problem resolved) on the *Breastfeeding Equipment* panel.
- Participants loaned an electric pump should be issued only one month's worth of food instruments for the first three months. Thereafter, the WIC High Risk Counselor or staff trained in lactation management may decide to issue two or three months worth of food instruments to reduce a barrier for mothers who have challenges making frequent WIC appointments. Staff members still need to contact the mother monthly by phone to assess the need for the pump.

iii. ***Special instructions for issuance of the single-user electric pump (non-serialized inventory)***

- Using the Colorado WIC Breast Pump/Aid Release Form, staff should check "WIC-In Style" and cross out the second set of responsibilities listed under "For loaned electric and pedal pumps:" as these only pertain to the loaned pumps.
- **Staff should encourage the mother to complete and mail the manufacturer's warranty card.** This is extremely important should a pump have a problem during the warranty period. Mothers reporting a broken or defective pump are responsible for contacting the pump manufacturer themselves for repair or replacement.
- Follow up: WIC staff should follow up with the mother within 72 hours of pump issuance and at subsequent follow-up visits to answer any concerns about the pump and breastfeeding in general. Document this brief follow-up in the Compass *Participant Care Plan.*

iv. Care for Electric and Pedal Breast Pumps

- Loaned electric and pedal breast pumps are to be cleaned when returned to the clinic after the loan to a participant. Make sure pumps are unplugged while cleaning.
- Clean pumps as described:
  - Wear gloves.
  - Apply cleaning solution (standard Bleach Solution: Mix bleach by using 1 part bleach and 9 parts water to make a 1:10 dilution, this solution is not stable and must be mixed fresh each day and discard after use) with a soft cloth. Leave solution on the pump for 30-60 seconds then rinse thoroughly with clean water.

v. Repair - If an electric breast pump needs repair:

For Pumps under Warranty:

- Contact State WIC Office to verify Warranty.
- Contact Medela at 1-800-435-8316 to request a repair return authorization number.
- Advise Medela that you have a Warranty Repair
- Forward return authorization number, along with pump serial number to the State WIC Office for recording of service on the pump.
- Ship the pump*, as instructed by Medela, to the Medela factory for repair.

For Pumps No Longer Under Warranty:

- Contact State WIC Office to request approval for repair.
- Contact Medela at 1-800-435-8316 to request a repair return authorization number.
- Contact the State WIC Office with the pump serial number, repair return authorization PRIOR to shipment.

- Notify the State WIC Office upon return of the repaired pump to confirm receipt.

***NOTE**: Ship pumps without their cases unless a pump is contaminated. Medela has specific shipping instructions for pumps contaminated with insects or bacteria. **Ship infested pumps in the case regardless of Medela's instructions**. Follow this procedure to avoid additional cost. If a case is not returned by Medela, the local agency may order a replacement.

vi. Procedures for Recovering a WIC-owned Electric Breast Pump

WIC benefits cannot be denied to a participant for failing to return a pump. If an electric breast pump is not returned or cannot be located, staff should do the following:

- Attempt to reach the participant and relatives/friends (referrals) listed on the *Breastfeeding Equipment* panel in Compass. Document all attempted contacts in Compass under *Comments/Alerts* of the participant's file.
- Contact the State WIC Office with the pump serial number to obtain the depreciated value of the pump.
- If the missing pump is determined to have no monetary value (the pump has dep0reciated over 6-years), it is up to the Agency/Clinic(s) to determine if pursuit of the pump should be continued. (*If a pump has $0.00 depreciated value, is it cost effective for an Agency/Clinic to continue pursuit of the missing pump*).
- If phone call contact attempts are unsuccessful, send a certified letter to the participant and contacts listed in Compass. Notify them if the pump is not returned promptly local authorities may be contacted.
- Depending on the pump's depreciated value, agency/clinics will determine whether to request assistance from local law enforcement. Many missing pumps are returned when local law enforcement makes contact with the participant; however not all local law enforcement will act on requests for assistance.
- If the pumps depreciated valued is still at/near purchase price, and cannot be recovered, contact the State WIC Office for further instructions.
- If the pump is not returned, the participant may not be eligible for a loaned hospital grade pump in the future. See *Section IX: Nutrition Education/Breastfeeding Promotion & Support: Issuance Criteria*.

vii. Offering Breastfeeding Aids

Breast shells and supplemental nursing systems are aids that may be provided to WIC participants as needed. Local agencies desiring to offer these must use local WIC agency funds to purchase them.

- *Issuance of Shells*
  Indications for use:
  - ✓ Sore nipples: worn over the nipples between nursings to minimize contact with clothing to help healing process.
  - ✓ Flat or inverted nipples: worn to press around the base of the nipple to cause the nipple to protrude. For prenatal use, shells are worn in the last month of pregnancy. It is imperative that the mother gets permission from her obstetric care provider to wear shells as they can trigger contractions of the uterus. For postpartum use, shells are typically worn for about 30 minutes before each feeding.

- *Issuance of Supplemental Nursing Systems (SNS)*
- SNS is a method to supplement a baby's intake while at the breast. While the baby breastfeeds they simultaneously receive expressed breast milk or formula via a small tube. The delivery of milk to the infant increases the chances that the infant will stay at the breast and continue to

suckle. Mothers receiving an SNS through WIC must be working closely with a hospital or community lactation consultant to ensure each infant is receiving adequate nutrition for growth.

Indications for use:

- ✓ Underweight breastfed infants
- ✓ Low milk supply
- ✓ Re-lactating mothers
- ✓ Mothers attempting to lactate for an adopted infant

Colorado WIC Breast Pump/Aid Release Form

FOR WIC CLINIC USE ONLY

Pump Issued
- ☐ Spring Express Manual
- ☐ Harmony Manual
- ☐ Pedal ID #_____
- ☐ Loan Lactina Serial #_____
- ☐ Loan Symphony Serial #_____
- ☐ WIC-in-Style

Aid Issued
- ☐ Breast shells
- ☐ Collection kit
- ☐ Supplemental Nursing System

Reviewed with Participant
- ☐ Pumping plans
- ☐ Storage of breast milk
- ☐ Breast pump/aid assembly
- ☐ Breast pump/aid use
- ☐ Breast pump/aid cleaning
- ☐ Returning to work or school
- ☐ Who to call for help

Issued by: _____ Follow-up date: _____

Participant read and initial by each statement below:

— I have been given the breast pump/aid marked above.
— The use of the pump/aid has been explained to me and I fully understand how to use it.
— For baby's health, I understand that this pump/aid is for *my use only*. I will **not give or sell** this pump/aid to anyone or let anyone else use it to avoid cross-contamination.
— I understand that the WIC Program, its employees, and the Colorado Department of Public Health and Environment are **not** responsible for any personal damage caused by the use of this breast pump/aid or caused by information and instruction provided by WIC staff.

For loaned electric and pedal pumps:

— I understand that this pump is the property of the Colorado WIC Program and must be returned to the WIC office by the following date: _____.
— I understand that I will make and keep monthly appointments while I have the pump.
— I understand that I am responsible to clean the pump (i.e., wipe) before returning it to the WIC office or I may be asked to clean it upon returning the pump.
— I will be responsible with this pump and return the pump in clean condition. I will not smoke around the pump.
— I will contact the WIC office if I cannot return the pump on time or if I would like to use it longer.
— I will report any loss, theft, breakage, or damage to the WIC Program immediately.
— I will contact the WIC Program if I move.
— If I don't return a loaned pump within 15 days of the date listed above, I understand the clinic will file a stolen property report with local enforcement.
— **If I fail to return the pump, I will replace it up to the value of the pump** (maximum of $500 electric and $25 pedal).

_____ _____ _____
WIC participant name - Print WIC ID number Date

_____ _____ _____
WIC participant name - Sign Phone number Message number

Participant's address: _____

Please list below, name, address, and phone number of local relative or friend not living with you: (at least 2)

1._____

2._____

3._____

Call the WIC Program at _____ if you have problems with this pump or need help with pumping.

☐ Breastfeeding ☐ Formula feeding ☐ Both Was the pump helpful to you? ___yes ___no

_____ _____ _____
Date Returned Participant Signature WIC Staff Signature

Colorado WIC Growing Healthy Families

J:\WICCommon\FORMS\#96 Breast Pump Aid Release 4.22.11

Medela Breast Pump Order Form

January☐ April☐ July☐ October☐

Complete order form instructions can be found on page 2

☐ Check this box if the Agency/Clinic(s) will not be ordering pumps this quarter.

☐ Check this box to indicate Agency WIC Director authorizes the order.

Please submit this form regardless if you are placing an order for the quarter or not (check appropriate box).

Agency Name & Address
Agency Name:
Street Address:
City, State & ZIP:
Phone Number:
Email Address:

Ship To Clinic Name & Address
Employee Name:
Clinic Name:
Street Address:
City, State & ZIP:
Phone Number:

NEW Equipment				
Qty	Item #	Description	Unit	Sold As
	016SC01	**Lactina Select w/Case**	Each	Each
	6107170W	WIC Lactina Double Breastpump Kit	20/Case	Case **ONLY**
	8007085	Lactina Replacement Case **ACCESSORY** for ***Lactina Select***	Each	Each
	8100147	Lactina Carrying Case Clips **ACCESSORY** for ***Lactina Select***	Each	Each
	8997001	Lactina Hard Case Strap **ACCESSORY** for ***Lactina Select***	Each	Each
	57018W	**Personal Double Pump Advanced (Two-Phase)**	3/Case	Case **ONLY**
	67112	**PedalPump WIC EXCLUSIVE**	Each	Each
	4707004	Pedal Pump Springs **ACCESSORY** for ***WIC Manual w/o Spring***	Each	Each
	8127017	Comfort Cushion (handle cover) **ACCESSORY** for ***WIC Manual w/o Spring***	Each	Each
	67161W2	**WIC Harmony Manual One-Handed Pump**	20/Case	Case **ONLY**
ACCESSORIES				
	67091	Lactina to Symphony **Conversion Kit**	10/Case	Case **ONLY**
	67090	Symphony to Lactina **Conversion Kit**	10/Case	Case **ONLY**
	6007080	Symphony Replacement Case	Each	Each
	87086	21 mm Breast Shield	12/Case	Case **ONLY**
	87077	27 mm Breast Shield	12/Case	Case **ONLY**
	87079	30 mm Breast Shield	12/Case	Case **ONLY**
	87094	36 mm Breast Shield	12/Case	Case **ONLY**
	87076	Personal Fit Connectors **ACCESSORY** for ***Lactina Select***	12/Case	Case **ONLY**

Instructions

The State Office of the Colorado WIC Program processes (4) breast pump orders yearly.
These are the only opportunities your Agency/Clinic(s) will have to stock your Medela Breast Pump supplies.

AGENCY and CLINIC information is "auto fill" if the information on the previous page is completed.
Fax or email completed page 1 of this form to katie.roby@state.co.us or fax to 303-756-9926. Please submit one form for EACH shipping address.

When orders have been received **AND** confirmed, please complete the ***Confirmation of Goods Received*** portion of this form (next page) and e-mail to katie.roby@state.co.us or fax to 303-756-9926.

J:\WICCommon\FORMS\#97 Pump Order Form 6.2

Lactation Management for Woman and Infants with Breastfeeding Complications or Potential Complications – High Risk *(Definitions, Complications, Assessment, Counseling Points and Contraindications follow below.)*

Definition

A breastfeeding woman with any of the following:

1. Severe breast engorgement
2. Recurrent plugged ducts
3. Mastitis(fever or flu like symptoms with localized breast tenderness)
4. Flat or inverted nipples
5. Cracked, bleeding, or severely sore nipples
6. Failure of milk to come in by 4 days postpartum
7. Tandem nursing (breastfeeding two siblings who are not twins)

Other conditions (described in this section), *not* defined in the nutrition risk factor criteria, that may impair successful breastfeeding include mother:

- Age 16 years or younger
- Consumes excess caffeine or herbal teas/herbs
- Uses alcohol or drugs (refer to section on breastfeeding contraindications)
- Breastfeeding multiples
- Breast variations (surgeries, asymmetry)
- Maternal medications
- Returning to work
- Other illness including: diabetes, systemic hypertension, pregnancy induced hypertension, PKU and eating disorders

Background

Breastfeeding problems left unidentified or managed can place the infant and mother at risk for health complications and lead to early breastfeeding cessation. Therefore, breastfeeding women with complications or potential complications require immediate intervention by the RD/RN or lactation management specialist. If these staff members are not available the day the problem is identified, the woman should be referred to her primary care provider, lactation consultant, a hospital lactation program, a trained public health nurse or a professional in the community with lactation management expertise.

Conditions that Contraindicate Breastfeeding or Require Medical Evaluation Before Breastfeeding is Permitted:

A. Women with **active tuberculosis** should refrain from breastfeeding or any other close contact with the infant, due to potential transmission through respiratory droplets. Women with tuberculosis who have been treated appropriately 2 or more weeks and who are considered not contagious may breastfeed. Drugs to treat the disease are known to be secreted into human milk, however no harmful effects have been demonstrated.

B. A woman who is **HIV-positive** should be counseled **not** to breastfeed her infant since human immunodeficiency virus has been found in human milk and can be transmitted through breastfeeding. (The World Health Organization recommends that, in areas where infectious diseases and malnutrition are important causes of infant mortality, mothers should be advised to breastfeed regardless of their HIV status.) In the U.S., however, where the risk of mortality from infectious diseases and malnutrition is low, and where safe and effective formulas are readily available, HIV-positive women should **not** breastfeed. Breast milk is one of the four identified body fluids that have the potential to transmit HIV.

C. **Hepatitis** is a viral infection of the liver that can cause fever, jaundice, anorexia, nausea, fatigue, and in some cases, chronic liver disease. All hepatitis is not the same, as hepatitis can have many causes, with each type differing in the method of transmission, incubation period, severity of illness, carrier state, possible treatments and preventions, and long-term prognosis. The decision to breastfeed should be made in conjunction with the mother's and the infant's health care provider and often warrants input from an infectious disease expert. The three most common types of hepatitis are:

- Hepatitis A - Breastfeeding is permitted for the infant of a mother with hepatitis A who has received gamma globulin.

- Hepatitis B - Breastfeeding is permitted for infants born to mothers with active disease or persistent hepatitis B surface antigen (HBsAg) after the infant receives both hepatitis B specific immunoglobulin (HBIG) and the first dose of the series of hepatitis B vaccine to eliminate any remote risk of transmission by breastfeeding.

- Hepatitis C - Hepatitis C virus (HCV) has been found in the milk of HCV-infected mothers. Although transmission of HCV by breastfeeding theoretically is possible, it has not yet been documented. The U.S. Public Health Service does not consider maternal HCV infection to be a contraindication to breastfeeding at this time. However, the decision to breastfeed should be made in collaboration with the infant's health care provider.

D. **Alcohol and drug abuse** may be linked with poor parenting practices and with child neglect and abuse. Alcohol and drug users may be reluctant or inattentive parents. Women who abuse alcohol, illegal drugs, marijuana or certain prescription medications**,** should **not** breastfeed. Most maternally ingested drugs are transmitted to breast milk. Some over-the-counter drugs may also cause reactions in the infant.

Intravenous drug abusers also have a high incidence of hepatitis and HIV, which can be transmitted to the breastfeeding infant.

- *Excessive alcohol* consumption during breastfeeding is contraindicated and should be carefully investigated due to a wide range of effects.

- *Use/abuse of illegal drugs* is a contraindication to breastfeeding. Illegal drugs are hazardous to the nursing infant and to the physical and psychological well-being of the mother. Category 2 illegal drugs (as defined by the Committee on Drugs of the American Academy of Pediatrics) contraindicated during breastfeeding include: amphetamines, cocaine, heroin, marijuana (though currently legal in Colorado), and PCP or angel dust.

E. **Life-threatening maternal illness,** such as heart or other organ failure, can contraindicate breastfeeding. For a seriously ill woman, the metabolic burden of lactation may jeopardize her life and health. In each case of serious maternal illness, the decision to breastfeed should be individualized and made in conjunction with the mother's health care provider.

Counseling on the Contraindications to Breastfeeding

- When a mother has a condition that **contraindicates breastfeeding,** encourage her to change her behavior (alcohol and/or drug use) or, in the case of some medical conditions, avoid breastfeeding altogether. A woman who is unable to change her behavior or condition should not be made to feel guilty. Provide her with the information specific to her contraindicated condition or behavior, while remaining as encouraging and positive as possible.

- Advise the mother to avoid **drug or alcohol** consumption while breastfeeding. A negative or threatening tone usually has the opposite effect from that desired, making the mother defensive and resistant to change. Inform her that alcohol and many drugs, including prescription, over-the-counter, and illegal drugs can pass into breast milk and harm her infant. Advise the mother to inform their doctors that they are breastfeeding, so medications can be prescribed that are not contraindicated.

- If the mother is using illegal drugs or alcohol, warn her of the dangers and refer her for further assistance.

Suggested Referrals

Breastfeeding Specialist: If there are problems with breastfeeding that cannot be solved by the WIC High Risk Counselor, refer to a lactation consultant, a hospital lactation program, a trained public health nurse, or the primary care physician.

Primary Care Provider, Nurse Practitioner, or Disease Specialist: When a mother has systemic illness and having problems with breastfeeding that may be directly or indirectly related to her disease. Rapid weight loss in a mother with diabetes or dramatically fluctuating blood pressure or edema in a woman who is hypertensive are two examples when immediate referral is necessary. Also, a woman with HIV+, active tuberculosis, hepatitis, or taking anticoagulants should be encouraged to maintain regular contact with her physician or health care provider. If she does not have a primary care provider, she should be referred to one. Familiarity with providers who are able to treat HIV, tuberculosis, and other systemic conditions is very important. By knowing available resources, referrals can be more personalized, thus increasing the likelihood of follow through by the participant.

Breastfeeding Support Group: such as La Leche League, may be helpful for the new mother.

Public Health Nurse: The public health nurse may have additional information and can often assist with problem solving and additional community resources. The nurse may be available for home visits as needed and can do additional assessments and referrals.

Social Worker or Mental Health Worker: In some cases the family situation or the parent/child relationship may be disordered or challenging that help is required from a mental health specialist to bring about change.

Substance Abuse Program: If substance abuse by the caregiver is involved refer to a substance abuse program.

Food Assistance Program: If needed, refer to food bank, Food Stamps or other food assistance programs.

Social Services: A referral to Social Services may be required if the cause of the low weight is believed to be a result of neglect or child abuse.

Other: Head Start or daycare for help with care of an older child if the caregiver is overwhelmed and does not have adequate time to provide care.

Discuss the reasons for follow-up visits to the WIC staff training in lactation management monthly or as needed. More frequent follow-up may be indicated given the breastfeeding complication. Follow-up telephone calls may

be appropriate in the days following the initial contact. It may also be appropriate to bring the breastfeeding dyad back to the clinic within a few days following a visit.

- Continue to monitor indicators for adequate nutritional intake, including weight gain, number of feedings, bowel movements and wet diapers.
- Provide praise and support for success with breastfeeding, as appropriate.
- Follow up with primary care provider or other referral as needed.

Infant Breastfeeding Complications or Potential Complications – High Risk

Definition

A breastfeeding infant with any of the following:

1. Jaundice
2. Weak or ineffective suck
3. Difficulty latching onto mother's breast
4. Inadequate stooling (for age, as determined by a physician or other health care professional), or less than 6 wet diapers

Other conditions infants may have (described in this section), *not* defined in the nutrition risk factor criteria, which may impair successful breastfeeding include:

- Neuromuscular problems, including Down's syndrome
- Oral anatomic problems, such as cleft lip and/or palate
- Excessive weight loss after birth and inadequate weight gain
- Refusal to nurse
- Low-birth-weight
- Born prematurely
- Born late-preterm
- Classic Galactosemia or Phenylketonuria (PKU)

Background

Breastfeeding problems left unidentified or managed can place the infant and mother at risk for health complications and lead to early breastfeeding cessation. Therefore, breastfeeding infants with complications or potential complications require immediate intervention by the RD/RN or lactation management specialist. If these staff members are not available the day the problem is identified, the woman should be referred to her primary care provider, lactation consultant, a hospital lactation program, a trained public health nurse or a professional in the community with lactation management expertise.

1. Severe Breast Engorgement

Background	Assessment	Counseling Points
Breast engorgement is over fullness in the breasts resulting from hormone changes after delivery and exaggerated by ineffective or irregular milk emptying. All new mothers experience some breast fullness when their milk comes in abundantly a few days after delivery. The condition is usually temporary until milk starts flowing freely and production adjusts to the infant's demand and nutritional requirements. Mild engorgement can usually be relieved with hand expression. Continued severe engorgement is often caused by infrequent nursing and/or ineffective removal of milk. With severe engorgement, massive breast congestion occurs and the breast becomes hard, shiny, and painful to the touch. The problem is compounded when severe breast swelling causes the nipple areola area to become flattened and tense, making it difficult for the infant to latch on correctly. The result can be sore, damaged nipples and poor milk transfer during feeding attempts. Worse yet, residual milk and excess pressure in the breasts can quickly result in diminished milk supply. When the infant is unable to latch on or nurse effectively, alternate methods of milk expression are necessary, such as using an electric breast pump.	Occurs approximately 2 to 4 days after delivery. The mother may complain of painful breast swelling and difficulty latching her infant on to nurse. Severe engorgement should be considered an urgent problem, which rapidly can lead to diminished breast milk supply if milk flow is not established quickly. Assess whether the infant is nursing with appropriate frequency and whether the mother has access to an electric breast pump. Engorgement can also occur anytime during the course of breastfeeding if the mother allows her breasts to go an inappropriately long interval without emptying. Examples include mother-infant separations due to work or school, an infant who sleeps all night without nursing, or a mother who offers a bottle to her infant in place of breastfeeding.	Encourage the mother to nurse as frequently as possible with the infant latched on correctly to help reduce breast firmness enough to relieve discomfort. This will require approximately nursing 10 to 15 minutes on each side every 1-3 hours (counted from the beginning of one feeding to the beginning of the next). Other recommendations include: (1) using moist heat on the breasts for 10 minutes before a feeding (applying a wash cloth soaked in warm water or standing in a warm shower); (2) expressing some milk by hand or with a breast pump to soften the nipple-areola area and breast; (3) gently massaging the breast from the outer margins toward the nipple to help move milk through the ducts; and (4) applying cold compresses to the breast after feedings to reduce swelling and pain. If the infant is unable to latch on or nurse effectively, alternate methods of milk expression are necessary, such as using an electric breast pump.

2. Recurrent Plugged Ducts

Background	Assessment	Counseling Points
Recurrent plugged ducts can be a frustrating problem for breastfeeding women. A clogged duct is a temporary back up of milk that occurs when one or more of the lobes of the breast don't drain well. A tender, hard knot can form in the blocked duct system, causing the surrounding area of the breast to feel full and tender. A clogged duct usually results from in-complete emptying of milk due to: infrequent or skipped nursings, severe engorgement, an over abundant milk supply, consistently nursing on one breast only, overly vigorous breast massage that traumatizes the tissues, or wearing an overly tight bra or constrictive clothing that prevents complete breast emptying. Any lump that persists for days or weeks must be accurately diagnosed to rule out the possibility of malignancy.	Inquire of mother about feeding frequency, the type of bra she wears, other constrictive clothing, whether she has an over-abundant milk supply, and whether the plugs occur in the same breast or both breasts, whether a particular duct system is frequently involved, and whether the problem resolves completely between recurrences.	Encourage the mother to: (1) nurse more frequently and start several consecutive feedings on the affected breast, (2) apply moist, hot packs and gentle massage or pressure applied to any tender knots to help milk flow from the obstructed area, (3) nurse in different positions and with the infant's sucking directed toward occluded ducts, (4) nurse at least 10 minutes per side; if the breasts aren't well emptied, she should pump or express enough residual milk to become comfortable. Elicit possible risk factors that predispose a woman to recurrent plugged ducts and encourage the mother to avoid such behaviors: - an erratic feeding frequency, - allowing the breasts to remain overly full, - tight conventional or underwire bras, - prolonged pressure on one area of the breast.

3. Mastitis

Background	Assessment	Counseling Points
Mastitis is a breast infection that causes a miserable, "flu-like" illness. A mother with mastitis may experience the following symptoms: tenderness or redness of the breast, flu-like symptoms, headache, nausea, fever, chills, malaise or fatigue. Factors that cause inadequate emptying of milk, such as engorgement, a clogged duct, or an erratic feeding schedule, can predispose a breastfeeding woman to mastitis. Infecting bacteria also can enter the breast through a cracked nipple or duct opening to cause mastitis.	Inquire about the presence and duration of signs and symptoms, including breast pain and redness, fever, and flu-like symptoms. Ask about predisposing factors, such as a clogged duct or cracked nipple. Inquire about medication allergies, since the woman will need treatment with antibiotics.	Encourage the mother to rest as much as possible and continue nursing from both breasts frequently. She can begin on the unaffected side until her let-down is triggered, then move the infant to the affected breast until it is well emptied. Moist hot packs applied prior to feeding may help facilitate milk flow. Recommend she call her physician so antibiotics can be prescribed promptly to prevent the development of an abscess. Symptoms usually improve dramatically within 48 hours of beginning antibiotic therapy, and treatment should continue for at least 10 days.

4. Flat or Inverted Nipples

Background	Assessment	Counseling Points
Flat or inverted nipple/s do not protrude properly so the infant may have difficulty latching on correctly to nurse. However, this should not prevent women from breastfeeding. Appropriate interventions (use of a breast pump prior to breastfeeding or wearing breast shells between feedings) can improve nipple protractility, and skilled help guiding an infant in proper breastfeeding technique can facilitate correct infant attachment.	Inquire about difficulties with latching the infant. Determine whether the mother had a physical assessment for flat or inverted nipples, and whether she has tried wearing breast shells or using a pump prior to feedings. If the infant has not been nursing well, assess whether mother's milk supply may have declined.	Flat or inverted nipples may interfere with proper latch. Instruct mother to compress the breast and areola between two fingers or draw out the nipple with an electric or manual pump before each feeding to facilitate latch. Usually pre feed pumping is necessary for only a few days until the infant learns to attach correctly. Wearing a breast shell between feedings may help make the nipple become more erect.

5. Cracked, Bleeding or Severely Sore Nipples

Background	Assessment	Counseling Points
Cracked, bleeding, or severely sore nipples are most often caused by improper infant positioning, latch on, or suckling. Most women experience slight nipple discomfort at the beginning of feedings during the first 3 -5 days of nursing. However, severe nipple pain, pain lasting throughout feedings, or pain persisting beyond one week postpartum is atypical and suggests the infant is not positioned correctly at the breast. Improper infant latch not only causes sore nipples, but impairs milk flow and leads to diminished milk supply and inadequate infant intake. Other causes of severe or persistent nipple pain include: mother not breaking suction properly before removing the infant from the breast; inappropriate breast care practices (i.e. washing nipples with soap or antiseptic); excessive nipple moisture or excessive drying; sensitive skin; infant tongue tie; overly vigorous infant sucking; infant pulling tongue back with each suck (causing "biting" effect); pro-longed non nutritive sucking; engorgement contributing to improper latch on; or mother pregnant or menstruating. Nipple soreness is due to the infant not grasping sufficient areola during latch. Pain or skin trauma on the underside of the nipple may result if the infant's lower lip is curled in while nursing.	Assessment requires the direct observation of breastfeeding. Evaluate the mother's positioning, the infant's latch technique, evidence of the let-down reflex, and the quality of infant sucking and swallowing. Inquire about the mother's nipple care practices, feeding routines, history of yeast infections in the infant or mother, the presence of open nipple cracks, infant tongue-tie, or the use of a breast pump.	The cause of the soreness needs to be determined in order to remedy the problem and prevent it from recurring. Review proper positioning and infant attachment, frequency and duration of feeds, and breast care, as appropriate. Review the nutritional status of the mother, focusing especially on protein, zinc, and vitamin C, to assure adequacy for wound healing. Reassure the mother that small amounts of blood will not harm her infant. (Although ingesting blood from a mother who is seropositive with Hepatitis C may be of concern. Have the mother discuss the risks with her physician.) Recommend the mother apply U.S.P. medical grade lanolin or hydro gel dressings to her nipples after nursing to prevent excessive moisture loss and promote healing. If an infection with yeast or bacteria is suspected, refer the mother to her health care provider for antifungal or antibiotic therapy. When nipple pain is so severe that it interferes with direct breastfeeding, suggest the mother use an electric breast pump to maintain her milk supply while her nipples heal.

Stabbing pain that persists after feedings and radiates through the breast is often associated with *Candida* infection of the nipples. Predisposing factors for yeast nipples include: infant thrush, yeast diaper rash, antibiotic treatment of infant or mother, or chronic yeast vaginal infections in the mother.

Bacterial infection, such as *Staphylococcus Aureus*, also can cause persistent or severe sore nipples. Staph infection is most common when the nipple has an open crack or the infant is less than 1 month old.

6. Forty Years of Age or Older

Background	Assessment	Counseling Points
Older breastfeeding women are more likely to experience fertility problems and perinatal risk factors that could impact the initiation of breastfeeding. Because evolutional breast changes can begin in the late 30s, older mothers *may* have fewer functioning milk glands than younger mothers, resulting in greater difficulty producing an abundant milk supply. Older mothers also may have less physical stamina to meet the demands of breastfeeding, higher performance expectations, or greater job and family responsibilities that could interfere with feeding on demand.	Inquire about any pregnancy or perinatal complications, other job and family commitments, and their expectations of themselves regarding breastfeeding.	If an older mother chooses to breastfeed, provide similar support and assurance given to other participants. If perinatal complications are anticipated, prepare the woman for the possibility of using a breast pump after delivery to initiate lactation. Arrange for close follow-up after discharge to assure that an adequate milk supply is produced. Help the mother prioritize other competing demands in her life to enable her to breastfeed often and get breastfeeding well established.

7. Failure of Milk to Come in by 4 Days Postpartum

Background	Assessment	Counseling Points
The failure of milk to come in by 4 days postpartum may be a result of maternal illness or perinatal complications. Onset of abundant milk production may be delayed in these women, although a normal milk supply may eventually be achieved. Failure of a mother's milk to come in normally by 4 days postpartum may place the infant at nutritional and/or medical risk, making temporary supplementation necessary. It is rare that a mother is unable to establish a full milk supply, due to illness or breast abnormalities.	When a mother reports that her milk is not in by 4 days postpartum, review the signs of lacto genesis, her breastfeeding frequency, and medical problems that could cause delayed onset of abundant milk production (e,g, hypertension, edema, retained placenta, diabetes). Inquire about the infant's birth weight, present weight, urine and stooling pattern, evidence of jaundice, and intake of any supplemental fluids.	Both mother and infant should be seen by the lactation management special +/or RD/RN in the clinic that day for a full assessment. The evaluation will help guide appropriate changes in feeding frequency or technique and determine the need to begin donor human milk (not available through WIC) or formula supplementation of the infant. Pumping after nursing may be suggested to increase breast stimulation and emptying. An infant feeding test weight procedure can be performed to document the infant's intake of milk during a breastfeeding. Refer the infant to his or her health care provider and, possibly, to a lactation consultant (at the hospital where she delivered or in the community).

8. Tandem Nursing

Background	Assessment	Counseling Points
Tandem nursing refers to breastfeeding two siblings who are not twins. It requires a great deal of patience and understanding on the mother's part to meet the unique needs of two nursing children at different developmental stages. The older infant/child may compete for nursing privileges, and care must be taken to assure that the younger infant has first access to the milk supply. The mother who chooses to tandem nurse will have increased nutritional requirements to assure her adequate milk production.	Inquire about the nursing routines for both children. Assess the mother's diet and fluid intake and whether she is getting adequate rest. Inquire about the mother's long-term breastfeeding plans. It also is useful to assess the reaction of her family and friends to tandem nursing and identify her sources of support.	The mother who chooses to tandem nurse two siblings who are not twins requires support and understanding for her particular parenting style. She will need to prioritize the nutritional and comfort needs of two children at different stages, without allowing herself to become physically or emotionally depleted. Encourage the mother to provide the younger infant with preferential access to the breast and to avoid using breastfeeding as her principal means of meeting the intimacy needs of the older infant/child.

Non-Nutrition Risk Factor Condition: Excessive Caffeine Intake/Herbs and Herbal Teas

Background	Assessment	Counseling Points
Consumption of excessive amounts of caffeine derived from coffee, teas, and cola beverages by the breastfeeding mother are excreted into breast milk. Symptoms of irritability and poor sleep patterns in the nursing infant could develop as a result of the accumulation of caffeine in the infant. Daily coffee consumption of 1 to 2 cups by the breastfeeding woman is unlikely to have a harmful effect on the nursing infant. Smoking has been shown to intensify the effect of caffeine. Chocolate and cocoa containing theobromine have been shown to have little effect on the infant when consumed by the mother. The increasing popularity of herbs and herbal teas carries an increased risk of potential toxicity and liver problems. While many herbal teas are safe, herbs should be classified as drugs, and components in some herbal teas may have undesirable effects on a breastfed infant when consumed by the mother. Examples include: licorice, comfrey leaves, sassafras, senna, buckthorn bark, chamomile and some herbal tea combinations, such as “Mothers Milk Tea.” If any herbal product is reported, its contents should be evaluated.	Ask the mother specifically what and how much is being taken or consumed. Include information about coffee, teas, colas, and other sources of caffeine. Try to ascertain the cultural significance of any herbal preparations the mother uses.	Counsel the mother on the potential effects of these substances on herself and her infant. Encourage the mother to greatly reduce or eliminate the consumption of excess caffeine and herbs. In a friendly tone, be direct and make positive statements whenever possible.

Non-Nutrition Risk Factor Condition: Mother Less than 16 Years of Age

Background	Assessment	Counseling Points
Breastfeeding women *less than 16 years of age* have not completed their own growth and development which places them at nutritional risk when lactating. The increased nutrient demands of pregnancy may have already compromised the young woman's nutritional status, and breastfeeding may further deplete her nutrient stores.	Assess the mother's knowledge of breastfeeding routines, her reasons for choosing breastfeeding, sources of breastfeeding support, her diet, fluid intake, and her ability to rest.	If a young mother chooses to breastfeed, provide praise, support and assurance that she can do so. Discuss the importance of getting sufficient rest and an adequate diet and fluids. Inquire about the challenges the mother perceives to attaining her breastfeeding goals. Offer resources and support. Be available as necessary to provide guidance and support for her decision and to help her prioritize her infant's needs. Show her how to breastfeed discreetly and explain pumping options to maintain her milk supply if she must be separated from her infant due to work or school commitments.

Non-Nutrition Risk Factor Condition: Breast Variations (surgeries, asymmetry)

Background	Assessment	Counseling Points
Breast variations may affect breastfeeding if mothers do not receive the support and information for success. While minor breast asymmetry is normal, marked differences may be linked with decreased milk production in the smaller breast. Other variations may be as a result of breast surgeries, whether cosmetic (augmentation or reduction) or diagnostic (e.g. lumpectomy).	Assess if the mother had a prenatal breast exam to screen for potential breastfeeding challenges. If variations exist recognize that they represent a risk to lactation.	Depending on the variation, encourage mothers to maximize early breast stimulation and drainage by pumping after feedings. Inform mothers about concerns but do not predict a poor outcome that could become a self-fulfilling prophecy. Recommend mother visit infant's health care provider for close weight monitoring.

Non-Nutrition Risk Factor Condition: Maternal Medications

Background	Assessment	Counseling Points
Virtually all lactating mothers will take one or more medications during the course of breastfeeding. Although all drugs are excreted to some degree in breast milk, most medications taken by nursing mothers actually are quite safe for breastfeeding infants because only minimal quantities of drug usually appear in milk. A host of drug properties influence the amount that appears in breast milk. A very helpful reference that is updated regularly is Medications and Mother's Milk by Thomas Hale, Ph.D or *Infant Risk Center* www.infantrisk.org or by phone **806-352-2519,** Monday-Friday 7am-4pm). Another resource is Thomas Hale's Breastfeeding and Medications Forum (for health care professionals) http://neonatal.ama.ttuhsc.edu/lact/	Assess that the mother is not taking cancer chemotherapy, radioactive drugs, or drugs that suppress the immune system, or illicit drugs. These are harmful and considered contraindicated in breastfeeding mothers.	Encourage mothers to ask their doctor, whenever a medication is prescribed, if it is safe for breastfeeding. If the medication is determined to not be compatible with breastfeeding, recommend mothers inquire for another medication that is compatible with breastfeeding.

Non-Nutrition Risk Factor Condition: Returning to Work

Background	Assessment	Counseling Points
Employed women have been less likely to initiate breastfeeding and they tend to breastfeed for a short length of time than women who are not employed. Colorado and Federal laws include provisions for employers to provide workplace accommodation for nursing employees.	Assess how long the mother would like to breastfeed and discuss the type of work she performs. Assess if she will have ability to nurse infant at work; work part time each day and not miss feedings; split her shift to work two shorter time frames in a day; pump and save at work; pump and dump; or not pump at work and attempt to breastfeed when with the infant.	Encourage mother to work part time or a split shift if feasible. Encourage her to discuss with her employer prenatally her intention to continue breastfeeding upon returning to work. Discuss building an abundant milk supply and expressing and freezing milk for the future. Recommend introducing a bottle to her infant once breastfeeding is going well. Discuss child care options and the importance of finding a suitable child care provider.

Non-Nutrition Risk Factor Condition: Systemic Illness

Background/Counseling Points

For mothers with systemic illnesses, ask the specific diagnoses, medications being taken, current health status and on-going medical care:

- Mothers with **diabetes** should be offered the opportunity to breastfeed unless specific problems are present that prohibit successful breastfeeding. It is essential that the mother with diabetes who breastfeeds understands that milk production requires additional calories. The insulin requirement usually decreases during lactation. Alert mothers to the risk of hypoglycemia. Mothers with diabetes are more susceptible to infection and are at increased risk for developing mastitis and yeast nipples. Reassure the mother that she is capable of breastfeeding successfully. Encourage her to follow her prescribed diet, drink adequate fluid, get moderate exercise, and maintain close communication with her primary health care team.
- Mothers with **systemic hypertension** are usually treated with drugs. Some drugs are secreted in breast milk and may affect the infant, while others may suppress milk production. In some cases, breastfeeding may help decrease blood pressure by relaxing the mother.
- Women **with pre-pregnancy-induced hypertension** (PIH) may deliver prematurely, and mother and infant often have significant perinatal complications. Lactogenesis (milk coming in) may be delayed postpartum. PIH usually resolves within 48 hours of delivery.
- Mothers with **PKU** – Pregnancy and breastfeeding can be successful if strict dietary controls are begun before conception. Composition of milk is normal in mothers whose PKU is controlled by diet.
- Mothers with **cystic fibrosis** may have limited milk production due to low body fat, or they may lose excessive weight while lactating. Milk composition is normal in mothers with cystic fibrosis.
- Mothers with **eating disorders** may lack sufficient body fat to produce abundant milk. Those mothers with depression may take medications that are contraindicated during lactation.

1. Jaundice

Background	Assessment	Counseling Points
Jaundice is a condition in which the skin, the whites of the eyes, and the mucous membranes appear yellow due to a substance, bilirubin, in the blood. Bilirubin is produced as a result of the breakdown of hemoglobin in red blood cells. It is carried through the blood to the liver where it is processed, excreted into the intestines, and eliminated in the stools. Jaundice occurs when bilirubin accumulates in the blood because red blood cells break down too quickly, the liver does not process bilirubin as efficiently as it should, or intestinal excretion of bilirubin is impaired. More than half of all newborns develop visible jaundice, which usually becomes apparent between 2 and 3 days of life and resolves by 7 to 10 days. The slight degree of jaundice observed in many healthy newborns is considered physiologic. Jaundice is considered pathologic if: - appears before 24 hours - lasts longer than 1-2 weeks - reaches an abnormally high level - or results from a medical problem such as rapid destruction of red blood cells, excessive bruising, liver disease, or other illness. Numerous studies confirm jaundice occurs more frequently and with greater severity in breastfed newborns.	***Jaundice*** in an infant may become evident within 2 to 10 days after birth. The infant appears to have a yellow tinge to his or her skin, the whites of the eyes, and mucous membranes. When jaundice occurs in an otherwise healthy, breastfed infant, it is important to distinguish *breast milk jaundice* from *breastfeeding jaundice* and determine the appropriate treatment. ***Breast Milk Jaundice*** In the condition known as *breast milk jaundice*, the onset of jaundice usually begins well after the infant has left the hospital, **5 to 10 days after birth**, and can persist for weeks and even months. Early visits to the WIC clinic can help identify and refer these infants to their primary health care providers. *Breast milk* jaundice is a normal physiologic phenomenon in the thriving breastfed infant and is due to a human milk factor that increases intestinal absorption of bilirubin. The stooling and voiding pattern is normal (≥4 yellow, seedy "milk" stools/day and ≥6 clear voids/day). If the bilirubin level approaches 18 -20 mg%, briefly interrupting breastfeeding for 24 - 36 hours results in a dramatic decline in bilirubin level. Resumption of breastfeeding usually results in cessation of the rapid fall in serum bilirubin concentration, and in many cases a small increase may be observed, followed by the usual gradual decline to normal.	***Breast Milk Jaundice*** Refer the infant with *breast milk jaundice* to the infant's physician to determine if the infant needs to cease breastfeeding to lower bilirubin levels. If it is recommended the infant not breastfeed for 24 - 36 hours, provide an electric breast pump to maintain the mother's milk supply. The expressed milk can be stored and fed at a later date; no need to discard.

Breast milk jaundice and breastfeeding jaundice are two different forms of jaundice (discussed under "Assessment") associated with the breastfed infant.

Jaundice in the newborn requires monitoring because bilirubin is a toxin. If allowed to accumulate, excessive bilirubin can be deposited in the tissues of the body, especially the brain, resulting in brain damage, hearing loss, cerebral palsy, and even death.

Furthermore, the underlying cause of jaundice needs to be diagnosed and treated, if necessary, as jaundice sometimes results from serious medical illness, such as infection, liver disease, heart failure, severe anemia, or hypothyroidism.

Breastfeeding Jaundice

Breastfeeding jaundice is an exaggeration of physiologic jaundice, which usually **peaks between 3 and 5 days** of life, though it can persist longer. This type of jaundice is a common marker for inadequate breastfeeding. An infant with breastfeeding jaundice is underfed and displays the following symptoms:

-infrequent/ineffective breastfeeding
-failure to gain appropriate weight
-infrequent stooling with delayed appearance of yellow stools (prolonged passage of meconium)
-scant dark urine with urate crystals.

Improved nutrition and phototherapy if required, usually results in a rapid decline in serum bilirubin concentration.

Breastfeeding Jaundice

The infant with *breastfeeding jaundice* should continue to breastfeed. Optimize breastfeeding technique and routines to maximize infant intake. Encourage the mother to frequently nurse the infant, to wake a sleepy infant, and not to limit the duration of feeds. Using an electric breast pump to express residual milk after nursing may help to increase the mother's supply. Weight checks should occur twice weekly until the infant has regained the birth weight or is gaining at least 1 ounce/day.

2. Weak or Ineffective Suck

Background	Assessment	Counseling Points
A weak or ineffective suck may cause an infant to obtain inadequate milk with breastfeeding and result in a diminished milk supply and an underweight infant. Weak or ineffective suckling can be due to prematurity, low birth weight, a sleepy infant, or physical/medical problems such as heart disease, respiratory illness, or infection. Newborns who receive bottle feedings before beginning breastfeeding or who frequently use a pacifier may have trouble learning the proper tongue and jaw motions required for effective breastfeeding.	A weak or ineffective suck should be considered whenever a breastfed infant is failing to gain adequate weight. The infant with an ineffective or weak suck must be evaluated in person. The most productive assessment often is observation of the infant at the breast. Sucking evaluations are best performed by health care professionals trained in lactation management or the infant's physician. An infant test-weighing procedure (weighing the clothed infant before and after breastfeeding) can help identify the nursing infant who sucks ineffectively and takes little milk.	Since the condition may contribute to or be the result of an insufficient milk supply, advise the mother to use a breast pump to express any residual milk after breastfeeding in order to increase her milk supply. As the mother's milk supply increases and the infant becomes stronger, the infant's ability to suck will improve. In some cases, supplemental milk can be provided simultaneously during breastfeeding, using a feeding tube device (the Supplemental Nursing System). This recommendation should be made after consultation with a lactation management specialist or the RD/RN.

3. Difficulty Latching onto Mother's Breast

Background	Assessment	Counseling Points
Difficulty latching onto the mother's breast may be due to flat or inverted nipples, breast engorgement, incorrect positioning, ankyloglossia, oral abnormalities or breastfeeding technique. Early exposure to bottle feedings can predispose infants to "nipple confusion," or difficulty learning to attach to the breast correctly in order to effectively extract milk.	To assess difficulty latching on, observe breastfeeding. Check the mother's positioning and latch technique to ensure she allows the infant to open his or her jaw sufficiently wide to grasp not just the nipple, but approximately an inch and a half of surrounding areola. If the mother has flat or inverted nipples, pumping for a few minutes prior to feeding will increase nipple prominence and may facilitate correct latch on. To assess ankyloglossia, does the infant's tongue extend beyond the gums or lips or it may appear heart shaped at the tip when extended.	Evaluation of the infant with difficulty latching on needs to be done in person before counseling occurs. The mother should be observed putting her infant to breast to ensure she is using correct technique. Many repetitions may be required to get the infant attached successfully, particularly for the inexperienced mother. If problems with correct breastfeeding technique are identified, then gentle encouragement and demonstration of proper technique may be all that is necessary. If a mother has flat or inverted nipples or breast engorgement that interferes with latch-on, briefly pumping prior to feeding may be necessary to elongate the nipples or soften the breasts. This is usually required for only a few days. If tongue appears "tied" refer to physician for evaluation for clipping the tight frenulum.

4. Inadequate Stooling for Age (as determined by a physician or other health care professional) or less than 6 wet diapers

Background	Assessment	Counseling Points
Inadequate stooling for age, less than 6 wet diapers per day, excessive weight loss, and inadequate weight gain are probable indicators that the breastfed infant is not receiving adequate milk. The infant at risk for failing to thrive, and the mother's milk supply is at risk for rapidly diminishing due to ineffective removal of milk. The breastfed infant with inadequate caloric intake must be identified early and the situation remedied promptly to avoid long-term consequences of dehydration or nutritional deprivation. Although failure-to-thrive can have many etiologies, the most common cause of inadequate weight gain in the breastfed infant is insufficient milk intake as a result of infrequent or ineffective nursing. Inadequate breastfeeding can be due to infant difficulties with latching on or sustaining suckling, a non-demanding infant, excessive use of a pacifier, or numerous other breastfeeding problems. Performing an infant test-weighing procedure can help confirm suspicions about inadequate milk consumption during breastfeeding and determine whether the "slow gaining" infant really is obtaining sufficient milk. WIC staff (RD/RNs, educators, breastfeeding peer counselors, LMSs and IBCLCs) should not perform test weights rather staff should refer infants who are not gaining well to their physician.	Inadequate stooling, less than 6 wet diapers per day, excessive weight loss, and inadequate weight gain, may be related to a number of breastfeeding problems. Mothers should be encouraged to bring their infants into the clinic within one week of delivery (**ideally 2 - 5 days postpartum**), if resources are available. Weigh the infant and inquire about the daily numbers of soiled and wet diapers. It is important to understand the difference between *slow gainers* and *failure-to-thrive*. Infants who are *slow gainers* usually feed with appropriate frequency, have a strong suck, have at least 6 wet diapers and multiple yellow seedy stools, and remain bright, responsive, alert, and content. Failure to thrive occurs commonly among breastfed infants especially in the first six months of life. It often resolves once solids and other liquids are added to the diet. In some cases, failure to thrive occurs in previously thriving breastfed infants, usually as a result of a dramatic decline in the mother's milk supply. Common causes of diminished milk supply include: a young infant sleeping through the night; a mother returning to work; a mother starting combination birth control pills (Estrogen can inhibit established lactation); an infant receiving solid foods that *displace* rather than *complement* breast milk in the infant's diet, or maternal illness such as mastitis.	An infant with excessive weight loss, inadequate weight gain, inadequate stooling and/or less than 6 wet diapers per day needs immediate evaluation to identify and remedy the cause. If the infant is obtaining insufficient milk, not only will the infant be undernourished, but the mother's milk supply will rapidly decrease. The infant may be an otherwise healthy, "slow gainer," or may be having difficulty gaining because of ineffective nursing, infrequent feedings, a low milk supply, a poor let-down reflex or other feeding problem. Expain to the mother that let-down is a conditioned reflex and that she should nurse her infant whenever she perceives her milk letting down. Using relaxation techniques and drinking fluids prior to nursing can help stimulate the milk ejection reflex. Review proper positioning and appropriate frequency and duration of feeds. Encourage the mother to breastfeed or pump frequently to maintain her milk supply and to get as much breast milk into her infant as possible. The mother can pump her breasts after feedings and use any expressed milk she obtains to supplement her infant's intake at the breast. Supplementing with expressed breast milk or formula may be required to achieve catch-up weight gain and maintenance growth until the infant begins nursing more effectively and the mother's milk supply increases.

The maximum acceptable weight loss after birth in breastfed infants is 10%, but few babies lose this much weight unless a breastfeeding problem is present. When an infant loses > 7% from birth weight, breastfeeding should be evaluated and appropriate interventions suggested to improve milk intake.

Continued weight loss after the mother's milk comes in suggests a problem with milk transfer from breast to infant.

It is normal for an infant to lose some weight after birth, but initial weight loss should be regained by two weeks of age. By 4 to 5 days of age, breastfed infants should start to gain about an ounce each day, or 5 to 7 ounces each week. Most will surpass their birth weight by 10 to 14 days.

Growth in the first 2 - 3 months of life should continue at about one ounce per day, or 5 - 7 ounces per week.

If the infant is apathetic, cries weakly, has strong smelling urine with fewer than 6 wet diapers a day and infrequent and/or few stools, he or she must be assessed for failure -to- thrive. The infant should be examined and the feeding routines evaluated to determine frequency, duration, technique, and an estimate of infant milk intake (preferably using infant test-weighing procedure or pumped milk volume). The presence of "breastfeeding jaundice," should be ruled out.

Breastfeeding should be observed to assess rooting, positioning, latch on, sucking and swallowing, use of a nipple shield, and evidence of milk let-down. Look for infant factors that interfere with effective nursing, such as a receding chin, difficulty breathing while nursing, repeatedly breaking suction, lack of coordination, or failure to sustain sucking.

Discuss bottle use as infants may have trouble learning to nurse after being given bottles or a pacifier.

Inquire about the mother's health. The mother's diet, sleeping pattern, smoking habits, medication use, drug or alcohol use, and medical conditions should be reviewed. In addition, the emotional status of the mother, and the psychosocial atmosphere in the home should be evaluated. Her report of pre-feed breast fullness, post-feed softening, evidence of the let-down reflex, sore nipples and mastitis are pertinent factors for inquiry.

If ongoing pumping becomes necessary, the mother will need encouragement and frequent contacts to continue breastfeeding.

Discourage the use of pacifiers in breastfed infants in the first month of life and for slow gaining infants.

Non Nutrition Risk Factor Condition: Neuromuscular problems

Background	Assessment	Counseling Points
Neuromuscular problems, such as Down's Syndrome, may result in ineffective suckling and inadequate breastfeeding. Down's Syndrome, or Trisomy 21, is a chromosome abnormality resulting in mental retardation and characteristic physical features, including flat nasal bridge, protruding tongue, up-slanted eyes, and short, spade-like hands. The Down's Syndrome infant may be extremely placid, difficult to awaken or keep awake, and have low muscle tone that result in poor suckling ability. Because Down Syndrome infants are highly susceptible to infections, the immune benefits of human milk make breastfeeding particularly advantageous to these babies. With skilled guidance and patience, many of these infants can learn to breastfeed effectively. Mothers will probably need to use an electric breast pump to express residual milk after feedings to maintain an abundant supply until the infant is able to breastfeed effectively.	*Neuromuscular* conditions, including Down's Syndrome, are usually diagnosed prenatally or while the infant is in the hospital. In a supportive hospital environment, a mother can be provided accurate, practical information about breastfeeding her infant. Some milder cases may go undiagnosed until the infant is brought to the clinic, with or without a feeding problem. Infants with Down's Syndrome may initially appear to suck well at the breast, only to develop feeding and growth problems after discharge. Feeding difficulties and poor weight gain can occur whether or not the infant is breastfed. Switching a breastfed infant who is gaining poorly to the bottle will not necessarily solve the problem. Observation of the mother's method of infant arousal and her feeding techniques will help identify feeding-related difficulties. Ask the mother to discuss her feelings about her infant to help identify underlying anxiety and depression that may interfere with successful breastfeeding.	An infant with *neuromuscular* problems, including Down's Syndrome and other trisomies, should be referred to a lactation consultant when difficulties are observed. This mother will need ongoing encouragement and guidance to successfully breastfeed her infant. Support the mother to breastfeed as long as possible or to consider pumping her breasts to supply her infant with her milk. Providing expressed breast milk for her infant can be highly rewarding to the mother as she sees her infant thrive on her own milk. If problems persist, the mother should not be made to feel guilty if she decides to discontinue breastfeeding. Nursing or pumping milk for an infant with a neuromuscular problem can be a trying experience. Whatever feeding decision she makes, support for the mother is critical, and she should be commended for providing any breast milk for her infant.

Non Nutrition Risk Factor Condition: Excessive Infant Weight Loss after Birth or Inadequate Weight Gain

Background	Assessment	Counseling Points
Excessive infant weight loss after birth (greater than1/2 pound weight loss or losing 8% to 10% of birth weight), inadequate infant weight gain (not back to birth weight by 2 weeks of age or gaining less than 5 to 7 ounces each week in the first 2 to 3 months of life), inadequate stooling for age, and less than 6 wet diapers per day are probable indicators that the breastfed infant is not receiving adequate milk. Refer to Condition, *Inadequate stooling for age (as determined by a physician or other health care professional), or less than 6 wet diapers*.	Refer to Condition *Inadequate stooling for age, (as determined by a physician or other health care professional), or less than 6 wet diapers.*	Refer to Condition *Inadequate stooling for age, (as determined by a physician or other health care professional), or less than 6 wet diapers.*

Non Nutrition Risk Factor Condition: Refusal to Nurse

Background	Assessment	Counseling Points
An infant who refuses to nurse, can be frustrating to the new mother. Evaluate the infant for neuromuscular problems, jaundice, tongue-tie, borderline prematurity, or other conditions. Unexplained refusal to nurse may be inter-preted by the mother as evidence of not having enough milk or the infant's rejection of breastfeeding, causing her to abandon nursing. Initial refusal to nurse can be due to: flat or inverted nipples; nipple confusion; incorrect positioning; infant tongue thrusting; prematurity; hypotonia; or infant illness. The infant who previously nursed well, but now refuses can be due to: diminished milk supply; inhibited let down reflex; maternal foods flavoring her milk; infant teething, earache, or nasal obstruction; infant startled by maternal reaction to infant biting nipple; maternal anxiety transmitted to infant; mother starting her period; change in soap or perfume. Infants who refuse to nurse should be evaluated for specific medical conditions that can cause disorders of sucking including: hypothyroidism, congenital heart disease, respiratory distress, abnormalities of the mouth including tongue-tie, cleft palate, cleft lip, or neurological disorders. Such conditions may have been overlooked in the hospital, particularly if no obvious signs are present at birth.	Refusal to nurse can be assessed by asking the mother to nurse her infant while being observed in the clinic. Reviews positioning of the infant during breastfeeding, making sure that the infant is held close, air passages are not blocked, and the mother is relaxed. Observe the position of the mother's hand on the breast to make sure it does not interfere with the infant's ability to grasp sufficient areola. The infant should grasp the entire nipple, plus about 1 to 1 ½ inches of surrounding areola, keeping the lips flanged outward, not curled in. Observe the maternal infant interaction during the feeding, including presenting the breast, assisting the infant to latch, and response of the infant to lower lip stimulus. Question the mother regarding the use of nipple shields, evidence of milk let down, and possibility of nipple confusion due to bottle supplementation. Observe for tongue thrusting by the infant. Some infants will push the breast out of their mouth many times but will finally latch on when the milk lets down. Hungry infants may be upset and screaming. A screaming infant should never be put to breast, but first calmed. Giving ½ to 1 ounce of expressed milk or formula by cup, bottle, or spoon may settle the infant sufficiently to resume attempts to breastfeed. If the infant is extremely irritable and unable to be calmed, the problem may be related to illness.	Mothers of infants who refuse to nurse should be counseled about interpreting their infant's cues in optimal positioning and latch-on technique. Expressing some milk or colostrum onto the nipple can entice a reluctant infant to latch on. Encourage the mother to nurse in subdued surroundings to minimize distractions if the infant has difficulty settling down to nurse. Mothers of infants who are not consistently nursing well should be advised to regularly empty their breasts with a breast pump to maintain a generous supply. This will facilitate a mother's efforts guiding her infant to nurse, as well as provide expressed milk for her infant's feedings. Refer the couple to the infant's primary health care provider and to a lactation consultant. Older infants who start refusing to nurse (nursing strike) often will latch on and nurse in their sleep and may continue breastfeeding after they awaken.

A clinic or home visit at 2 - 5 days postpartum is important to detect such conditions. In addition, an infant who refuses to nurse requires frequent weight checks and an interim feeding plan until effective breastfeeding can be achieved.	Question the mother about her diet to determine if any foods may be causing an off taste in her milk or if she has changed soaps perfumes or creams that the infant may be reacting to.	

Non Nutrition Risk Factor Condition: Low Birth Weight, Premature, or Late-preterm

Background	Assessment	Counseling Points
Low-birth-weight infants are those born weighing less than 5 ½ pounds who may or may not be full term. Premature infants are infants born less than 38 weeks gestation. The infant's ability to breastfeed may be dependent upon the gestational age and the presence of medical factors. Even borderline premature infants (36 - 38 weeks) can have initial difficulty learning to breastfeed effectively, although with skilled guidance, they can go on to nurse well. Late-preterm infants are born 34-36 weeks gestation and are less physiologically and metabolically mature and make up over 70% of all preterm infants. Very premature infants usually cannot be nourished by milk alone. While expressed human milk provides many essential nutrients and immune factors necessary for healthy growth and development of premature infants, it has been found to be limiting in some nutrients. Mother's milk often is fortified with protein, vitamins, and minerals for premature infant feeding. Many preemies remain in the hospital for extended periods of time, making breastfeeding on demand impractical. A mother should be encouraged to provide breast milk for her infant through use of a pump until the infant is able to nurse. Mothers who provide expressed milk for their premature infants say it helps them feel connected to their babies.	Premature and low-birth-weight infants may present special problems. Optimum growth for the premature infant is the growth curve he or she would have followed if s/he had remained in the uterus until full term. Some infants may be sleepy and difficult to keep aroused; this is common in premature infants who have not reached their due date. Medications given to the mother at delivery, and shortly thereafter, may remain in the infant's system or be passed through breast milk, causing the infant to be placid. Observing the mother's techniques for arousing and feeding her infant will provide additional insight about breastfeeding problems. Assess the mother’s ability to use and benefit from an electric breast pump.	Mothers of infants who are **premature or weighing less than 5 ½ pounds at birth** should be counseled on optimizing breastfeeding technique and routines to maximum infant intake. Counsel mother as she sees her infant thrive on her own milk. Congratulate the mother for her efforts to provide her milk for her premature infant. Continue to offer encouragement and support. Nursing or pumping milk for an infant with a neuromuscular problem can be a trying experience. Whatever feeding decision she makes, support for the mother is critical, and she should be commended for providing any breast milk for her infant. A mother needs continued support and encouragement to maintain her milk supply.

Non Nutrition Risk Factor Condition: Classic Galactosemia

Background	Assessment	Counseling Points
Classic galactosemia is a rare hereditary disorder of galactose metabolism. Human milk contains high levels of lactose, which breaks down to glucose and galactose. Breastfeeding is contraindicated, as the infant is unable to metabolize galactose. A galactose-free diet is essential to prevent rapid progression of disease leading to brain damage and death. Initially, the diagnosis may be confused with other conditions that cause persistent jaundice, vomiting, diarrhea, dehydration, or weight loss.	Assessment is done using laboratory analysis of the urine and blood. A simple urine screen can be done (not as reliable as testing blood) and should be obtained even if an initial metabolic screen was done in the hospital. An infant seen in the clinic with severe and persistent jaundice, vomiting, diarrhea, dehydration, and weight loss s/he must be immediately referred to rule out the disease. The infant with galactosemia requires a special formula and should **not** be breastfed.	Assessment is done using laboratory analysis of the urine and blood. A simple urine screen can be done (not as reliable as testing blood) and should be obtained even if an initial metabolic screen was done in the hospital. An infant seen in the clinic with severe and persistent jaundice, vomiting, diarrhea, dehydration, and weight loss s/he must be immediately referred to rule out the disease. The infant with galactosemia requires a special formula and should **not** be breastfed.

Non Nutrition Risk Factor Condition: Phenylketonuria (PKU)

Background	Assessment	Counseling Points
PKU is a rare metabolic hereditary disorder. The lack of the enzyme that converts the amino acid phenylalanine to tyrosine causes phenylalanine to accumulate in the blood. Without treatment, patients develop severe mental retardation. Other symptoms include hyperactivity, a light complexion, and eczema. The aim of treatment is to limit dietary phenylalanine intake to amounts that permit normal growth and development without causing an accumulation in the blood.	Since human milk contains less of certain amino acids, such as phenylalanine, than cow's milk, partial breastfeeding is desirable with supplement of a phenylalanine-free formula.	Mothers of infants with PKU required close monitoring by a metabolic specialist and a pediatric dietitian. WIC staff can support the mother with encouragement and normal breastfeeding support.

Suggested Referrals

Lactation Specialist: If there are problems with breastfeeding that cannot be solved by the WIC High Risk Counselor, refer to a lactation consultant, a hospital lactation program, a trained public health nurse, or the primary care physician.

Breastfeeding Support Group: For example, the La Leche League may be helpful for the new mother.

Children with Special Health Care Needs Program: If the child needs evaluation or services from a pediatric specialist, e.g., physician, speech therapist, occupational or physical therapist, dietitian, audiologist, nurse, or social worker.

Public Health Nurse: The public health nurse may have additional information and can often assist with problem solving and additional community resources. The nurse may be available for home visits as needed and can do additional assessments and referrals.

Social Worker or Mental Health Worker: In some cases the family situation or the parent/child relationship may be so disordered that help is required from a mental health specialist to bring about change.

Substance Abuse Program: If substance abuse by the caregiver is involved refer to a substance abuse program.

Food Assistance Program: If needed, refer to food bank, Food Stamps or other food assistance programs.

Social Services: A referral to Social Services may be required if the cause of the low weight is believed to be a result of neglect or child abuse.

Other: Head Start or daycare for help with care of an older child if the caregiver is overwhelmed and does not have adequate time to provide care.

Follow Up

Discuss the reasons for follow-up visits to the WIC nutritionist/nurse monthly or as needed. More frequent follow up may be indicated given the breastfeeding complication. Follow-up telephone calls may be appropriate in the days following the initial contact. It may also be appropriate to bring the breastfeeding dyad back to the clinic within a few days following a visit.

- Continue to monitor indicators for adequate nutritional intake, including weight gain, number of feedings, bowel movements, and wet diapers.
- Provide praise and support for success with breastfeeding, as appropriate.
- Follow up with primary care provider or other referral as needed.

IV. Compass Reports

A complete list of each Compass report and its description is located on Colorado WIC website in the Compass section.

Reports commonly used by WIC High Risk Counselors follow:

1. *High Risk Nutrition Education* (located under Assessment & Education Reports)
    1. This report is used to track whether high risk participants have been seen within the appropriate time frames.
2. *Appointment Summary* (located under Scheduler)
    1. Appointment show rates (kept, no shows, reschedules, & cancelled.)

V. Confidentiality of WIC Participant data – (See Program Manual Section VII – Eligibility; *Confidentiality and Release of Participant Information*)

The protection of WIC participant data is governed by USDA Confidentiality regulations. Because the local agencies contracted to provide WIC services are commonly governed by **The Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy, Security and Breach Notification Rules, local WIC staff must abide by both sets of rules. Please check with your supervisor to learn what this means to you, a handler of WIC participant data.**

VI. Mandatory Reporting - (See Program Manual Section IX: Nutrition Education/Breastfeeding Promotion & Support; Subject: Documentation)

All local agency WIC staff persons are required to document any suspected instances of child abuse or neglect. Per instructions from the Dept of Human Services, agency staff are encouraged to contact their county's Human Services agency for exact instructions on reporting and to request training on the topic. The Participant Care Plan should be used for WIC-related observations, verbal or written reports. All documentation must be done in a professional manner as any WIC record can be used for legal purposes.

101 Underweight (Women)

Definition/Cut-off Value

Underweight for women is defined as follows:

Category	BMI
Pregnant Women	Prepregnancy Body Mass Index (BMI) <18.5.
Non-Breastfeeding Women	Prepregnancy or current Body Mass Index (BMI) <18.5.
Breastfeeding Women less than 6 Months Postpartum	Prepregnancy or current Body Mass Index (BMI) <18.5.
Breastfeeding Women 6 Months Postpartum or More	Current Body Mass Index (BMI) <18.5.
Note: A BMI table is attached to assist in determining weight classification. Also, until research supports the use of different BMI cut-offs to determine weight status categories for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility (1). (See Justification for a more detailed explanation.)	

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Underweight women who become pregnant are at a higher risk for delivery of low birth weight (LBW) infants, retarded fetal growth, and perinatal mortality. Prepregnancy underweight is also associated with a higher incidence of various pregnancy complications, such as antepartum hemorrhage, premature rupture of membranes, anemia, endometriosis, and cesarean delivery (2).

The goal in prenatal nutritional counseling provided by WIC is to achieve recommended weight gain by emphasizing food choices of high nutritional quality; and for the underweight woman, by encouraging increased consumption and/or the inclusion of some calorically dense foods.

The 2009 Institute of Medicine (IOM) report: Weight Gain During Pregnancy: Reexamining the Guidelines updated the pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (3). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short-and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on prepregnancy weight status categories are associated with improved maternal and child health outcomes (1).

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents.

It is recognized that both the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut- offs will be used for all women regardless of age. However, due to the lack of research on relevant BMI cut- offs for pregnant and postpartum adolescents, professionals should use all of the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

Weight during the early postpartum period, when most WIC certifications occur, is very unstable. During the first 4-6 weeks fluid shifts and tissue changes cause fluctuations in weight. After 6 weeks, weight loss varies among women. Prepregnancy weight, amount of weight gain during pregnancy, race, age, parity and lactation all influence the rate of postpartum weight loss. By 6 months postpartum, body weight is more stable and should be close to the prepregnancy weight. In most cases therefore, prepregnancy weight is a better indicator of weight status than postpartum weight in the first 6 months after delivery. The one exception is the woman with a BMI of ≤18.5 during the immediate 6 months after delivery. Underweight at this stage may indicate inadequate weight gain during pregnancy, depression, an eating disorder or disease, any or all of which need to be addressed (4).

While being on the lean side of normal weight is generally considered healthy, being underweight can be indicative of poor nutritional status, inadequate food consumption, and/or an underlying medical condition. Underweight women who are breastfeeding may be further impacting their own nutritional status. Should she become pregnant again, an underweight woman is at a higher risk for delivery of low birth weight (LBW) infant(s), retarded fetal growth, and perinatal mortality. The role of the WIC Program is to assist underweight women in the achievement of a healthy dietary intake and body mass index.

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3. National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults. NIH Publication No. 98-4083, 1998. www.nih.gov. Accessed June 2009.
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BMI Table for Determining Weight Classification for Women (1)

Height (Inches)	Underweight BMI <18.5	Normal Weight BMI 18.5-24.9	Overweight BMI 25.0-29.9	Obese BMI ≥30.0
58”	<89 lbs	89-118 lbs	119-142 lbs	>142 lbs
59”	<92 lbs	92-123 lbs	124-147 lbs	>147 lbs
60”	<95 lbs	95-127 lbs	128-152 lbs	>152 lbs
61”	<98 lbs	98-131 lbs	132-157 lbs	>157 lbs
62”	<101 lbs	101-135 lbs	136-163 lbs	>163 lbs
63”	<105 lbs	105-140 lbs	141-168 lbs	>168 lbs
64”	<108 lbs	108-144 lbs	145-173 lbs	>173 lbs
65”	<111 lbs	111-149 lbs	150-179 lbs	>179 lbs
66”	<115 lbs	115-154 lbs	155-185 lbs	>185 lbs
67”	<118 lbs	118-158 lbs	159-190 lbs	>190 lbs
68”	<122 lbs	122-163 lbs	164-196 lbs	>196 lbs
69”	<125 lbs	125-168 lbs	169-202 lbs	>202 lbs
70”	<129 lbs	129-173 lbs	174-208 lbs	>208 lbs
71”	<133 lbs	133-178 lbs	179-214 lbs	>214 lbs
72”	<137 lbs	137-183 lbs	184-220 lbs	>220 lbs

(1) Adapted from the Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH). NIH Publication No. 98-4083.

103 Underweight or At Risk of Underweight (Infants and Children)

Definition/Cut-off Value

Underweight and at risk of underweight are defined as follows:

Weight Classification	Age	Cut-off Value
103B Underweight	Birth to < 24 months	≤ 2nd percentile weight-for- length as plotted on the Centers for Disease Control and Prevention (CDC) Birth to 24 months gender specific growth charts (1).*
	2-5 years	≤ 5th percentile Body Mass Index (BMI)-for-age as plotted on the 2000 CDC age/gender specific growth charts (2).
103A At Risk of Underweight	Birth to < 24 months	> 2nd percentile and ≤ 5th percentile weight-for-length as plotted on the CDC Birth to 24 months gender specific growth charts (1).*
	2-5 years	>5th percentile and ≤ 10th percentile BMI-for-age as plotted on the 2000 CDC age/gender specific growth charts (2).
*Based on 2006 World Health Organization international growth standards (3). For the Birth to < 24 months "underweight" definition, CDC labels the 2.3rd percentile as the 2nd percentile on the Birth to 24 months gender specific growth charts. For more information about the percentile cut-off, please see Clarification. Note: The Birth to 24 months and the 2000 CDC growth charts are available at: www.cdc.gov/growthcharts.		

Participant Category and Priority Level

Category	Priority
Infants	I
Children	III

Justification

The CDC uses the 2.3rd percentile weight-for-length (for birth to 24 months of age) and the 5th percentile BMI-for-age (for 2-5 years of age), as the cut-offs to define underweight in its Pediatric Nutrition Surveillance System (1, 2). However, CDC does not have a position regarding the cut-off percentile, which should be used to determine at risk of underweight as a nutrition risk in the WIC Program. At risk of underweight is included in this criterion to reflect the preventive emphasis of the WIC Program.

A review of literature on weight-for-length or stature cut-off percentiles indicates that: a) many children at or below the 5th percentile for weight are in need of nutritional intervention, and b) those at or below the 10th percentile may be at nutritional risk and in need of preventive nutritional intervention, or at least further evaluation (4).

Weight-for-length/stature describes body proportionality and is sensitive to acute under nutrition, but can also reflect long-term status (5). Physical growth delay is used as a proxy for the deleterious effects under nutrition can have on immune function, organ development, hormonal function and brain development (6).

Implications for WIC Nutrition Services

Participation in WIC has been associated with improved growth in both weight and height in children (7). An infant or child determined to be underweight at WIC certification should be monitored at regular intervals during the certification period, as appropriate. Through client-centered counseling, WIC staff can assist families in making nutritionally balanced food choices to promote adequate weight gain. Also, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

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Clarification

The cut-off for underweight for infants and children < 24 months is 2.3; however, for ease of use, CDC labels it as the 2nd percentile on the hard copy Birth to 24 months growth charts. Electronic charts should use the 2.3rd percentile as the cut-off.

111 Overweight (Women)

Definition/Cut-off Value

Overweight for women is defined as follows:

Category	Cut-off Value
Pregnant Women	Prepregnancy Body Mass Index (BMI) ≥ 25
Non-Breastfeeding Women	Prepregnancy Body Mass Index (BMI) ≥ 25
Breastfeeding Women less than 6 Months Postpartum	Prepregnancy Body Mass Index (BMI) ≥ 25
Breastfeeding Women 6 Months Postpartum or more	Current Body Mass Index (BMI) ≥ 25
Note: A BMI table is attached to assist in determining weight classifications. Also, until research supports the use of different BMI cut-offs for adolescent pregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility (1). (See Justification for a more detailed explanation.)	

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Maternal overweight and obesity are associated with higher rates of cesarean delivery, gestational diabetes mellitus, preeclampsia and other pregnancy-induced hypertensive disorders, as well as postpartum anemia (2). Several studies have established an association between obesity and an increased risk for hypertension, dyslipidemia, diabetes mellitus, cholelithiasis, coronary heart disease, osteoarthritis, sleep apnea, stroke and certain cancers (1).

One goal of prenatal nutritional counseling is to achieve recommended weight gain during pregnancy. For the overweight woman, emphasis should be on selecting food choices of high nutritional quality and avoiding calorie-rich foods, thereby minimizing further risks associated with increased overweight and obesity.

The 2009 Institute of Medicine (IOM) report: *Weight Gain During Pregnancy: Reexamining the Guidelines* updated the pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (3). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short-and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on prepregnancy weight status categories are associated with improved maternal and child health outcomes (1).

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents. It is recognized that the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut-offs will be used for all women regardless of age. However, due to the lack of research on relevant BMI cut-offs for pregnant and postpartum adolescents, professionals should use all of the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

Weight during the early postpartum period, when most WIC certifications occur, is very unstable. During the first 4-6 weeks fluid shifts and tissue changes cause fluctuations in weight. After 6 weeks, weight loss varies among women. Prepregnancy weight, amount of weight gain during pregnancy, race, age, parity and lactation all influence the rate of postpartum weight loss. By 6 months postpartum, body weight is more stable and should be close to the prepregnancy weight. In most cases, therefore, prepregnancy weight is a better indicator of weight status than postpartum weight in the first 6 months after delivery (4).

The percentage of adolescents who are overweight has increased rapidly and more than 60% of adults in the US are overweight. Due to the significant impact that overweight and obesity have on morbidity and mortality, it is imperative that every effort be made to identify individuals who are overweight and to assist them in achieving a more healthful weight. The WIC Program is in a position to play an important role in helping to reduce the prevalence of overweight not only by working with postpartum women on improving their own weight status, but also by helping them to see their role in assisting their children to learn healthful eating and physical activity behaviors.

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BMI Table for Determining Weight Classification for Women (1)

Height (Inches)	Underweight BMI < 18.5	Normal Weight BMI 18.5-24.9	Overweight BMI 25.0-29.9	Obese BMI ≥ 30.0
58”	< 89 lbs	89-118 lbs	119-142 lbs	> 142 lbs
59”	< 92 lbs	92-123 lbs	124-147 lbs	> 147 lbs
60”	< 95 lbs	95-127 lbs	128-152 lbs	> 152 lbs
61”	< 98 lbs	98-131 lbs	132-157 lbs	> 157 lbs
62”	< 101 lbs	101-135 lbs	136-163 lbs	> 163 lbs
63”	< 105 lbs	105-140 lbs	141-168 lbs	> 168 lbs
64”	< 108 lbs	108-144 lbs	145-173 lbs	> 173 lbs
65”	< 111 lbs	111-149 lbs	150-179 lbs	> 179 lbs
66”	< 115 lbs	115-154 lbs	155-185 lbs	> 185 lbs
67”	< 118 lbs	118-158 lbs	159-190 lbs	> 190 lbs
68”	< 122 lbs	122-163 lbs	164-196 lbs	> 196 lbs
69”	< 125 lbs	125-168 lbs	169-202 lbs	> 202 lbs
70”	< 129 lbs	129-173 lbs	174-208 lbs	> 208 lbs
71”	< 133 lbs	133-178 lbs	179-214 lbs	> 214 lbs
72”	< 137 lbs	137-183 lbs	184-220 lbs	>220 lbs

(1) Adapted from the Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH). NIH Publication No. 98-4083.

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113 Obese (Children 2-5 Years of Age)

Definition/Cut-off Value

Obesity for children 2-5 years of age is defined as follows:

Age	Cut-Off Value
2-5 years	≥ 95th percentile Body Mass Index (BMI) or weight-for-stature as plotted on the 2000 Centers for Disease Control and Prevention (CDC) 2-20 years gender specific growth charts (1,2) (available at: www.cdc.gov/growthcharts).*
*The cut off is based on standing height measurements. Therefore, recumbent length measurements may not be used to determine this risk. See Clarification for more information.	

Participant Category and Priority Level

Category	Priority
Children (2-5 years of age)	III

Justification

The rapid rise in the prevalence of obesity in children and adolescents is one of the most important public health issues in the United States today. The National Health and Nutrition Examination Survey (NHANES) from the mid-1960s to the early 2000s document a significant increase in obesity among children from preschool age through adolescence. These trends parallel a concurrent increase in obesity among adults, suggesting that fundamental shifts occurring in dietary and/or physical activity behaviors are having an adverse effect on overall energy balance (3).

The causes of increased obesity rates in the United States are complex. Both genetic make-up and environmental factors contribute to the obesity risk. Important contributors include a large and growing abundance of calorically dense foods and an increased sedentary lifestyle for all ages. Although obesity tends to run in families, a genetic predisposition does not inevitably result in obesity. Environmental and behavioral factors can influence the development of obesity in genetically at-risk people (3).

BMI is a measure of body weight adjusted for height. While not a direct measure of body fatness, BMI is a useful screening tool to assess adiposity (3). Children >2 years of age, with a BMI-for-age >85th and <95th percentile are considered overweight and those at or above the 95th percentile, obese (4). Research on BMI and body fatness shows that the majority of children with BMI-for-age at or above the 95th percentile have high adiposity and less than one-half of the children in the 85th to <95th percentiles have high adiposity (4). Although an imperfect tool, elevated BMI among children most often indicates increased risk for future adverse health outcomes and/or development of diseases (5). BMI should serve as the initial screen and as the starting point for classification of health risks (3).

Use of the 95th percentile to define obesity identifies those children with a greater likelihood of being obese as adolescents and adults, with increased risk of obesity-related disease and mortality. It is recommended that an obese child (95th percentile) undergo a medical assessment and careful evaluation to identify any underlying health risks or secondary complications (3). Obesity can result from excessive energy intake, decreased energy expenditure, or a medical condition that impairs the regulation of energy metabolism. In addition, obesity in early childhood may signify problematic feeding practices or evolving family behaviors that, if continued, may contribute to health risks in adulthood related to diet and inactivity.

Implications for WIC Nutrition Services

The WIC Program plays an important role in public health efforts to reduce the prevalence of obesity by actively identifying and enrolling young children who may be obese or at risk of overweight/obesity in later childhood or adolescence. When identifying this risk, it is important to communicate with parents/caregivers in a way that is supportive and nonjudgmental, and with a careful choice of words that convey an empathetic attitude and minimize embarrassment or harm to a child's self-esteem (4). In recognition of the importance of language, the 2007 American Medical Association Expert Committee Report recommends the use of the terms overweight and obese for documentation and risk assessment only and the use of more neutral terms (e.g., weight disproportional to height, excess weight, BMI) when discussing a child's weight with a parent/caregiver (3) .

BMI is calculated and plotted on growth charts at each WIC certification. However, growth charts are meant to be used as a screening tool and comprise only one aspect of the overall growth assessment. A clinical assessment to determine if a child is at a healthy weight is more complex. Weight classification (derived from the growth chart) should be integrated with the growth pattern, familial obesity, medical risks, and dietary and physical activity habits to determine the child's obesity risk (1, 5).

The goal in WIC nutrition counseling is to help the child achieve recommended rates of growth and development. WIC staff can frame the discussion to make achieving normal growth a shared goal of the WIC Program and the parent/caregiver and make clear that obesity is a medical condition that can be addressed (4). Parents/caregivers of children may need education on recognition of satiety cues and other physiological needs that lead to crying, and ways to comfort a child (holding, reading, rocking) other than by feeding. The foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population and can be tailored to meet the needs of individual participants. Emphasis can be placed on promoting food choices of high nutritional quality while avoiding unnecessary or excessive amounts of calorie rich foods and beverages, and reducing inactivity (like decreasing sedentary TV viewing).

Beliefs about what is an attractive or healthy weight, the importance of physical activity, what foods are desirable or appropriate for parents to provide to children, family mealtime routines, and many other lifestyle habits are influenced by different cultures, and should be considered during the nutrition assessment and counseling (6). The following resources for obesity prevention can be found at:

- Fit WIC Materials: http://www.nal.usda.gov/wicworks/Sharing_Center/gallery/foodfunfamilies.htm.
- MyPryramid for Preschoolers: http://www.mypyramid.gov/preschoolers/index.html

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

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Clarification

The 2000 CDC Birth to 36 months growth charts cannot be used as a screening tool for the purpose of assigning this risk because these charts are based on recumbent length rather than standing height data. However, these charts may be used as an assessment tool for evaluating growth in children aged 24-36 months who are not able to be measured for the standing height required for the 2000 CDC 2-20 years growth charts.

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114 Overweight or At Risk of Overweight (Infants and Children)

Definition/Cut-Off Value

Weight Classification	Age	Definition/Cut-off value
Overweight	2 - 5 years	≥85th and < 95th percentile Body Mass Index (BMI)-for-age or weight-for-stature as plotted on the 2000 Centers for Disease Control and Prevention (CDC) 2- 20 years gender specific growth charts (1,2).*
At Risk of Overweight	< 12 months (infant of obese mother)	Biological mother with a BMI ≥ 30 at the time of conception or at any point in the first trimester of pregnancy.**
	≥12 months (child of obese mother)	Biological mother with a BMI ≥ 30 at the time of certification.** (If the mother is pregnant or has had a baby within the past 6 months, use her preconceptual weight to assess for obesity since her current weight will be influenced by pregnancy-related weight gain.)
	Birth to 5 years (infant or child of obese father)	Biological father with a BMI ≥ 30 at the time of certification.**

* The cut off is based on standing height measurements. Therefore, recumbent length measurements may not be used to determine this risk. See Clarification for more information.
** BMI must be based on self-reported weight and height by the parent in attendance (i.e., one parent may not "self report" for the other parent) or weight and height measurements taken by staff at the time of certification.
Note: The 2000 CDC 2 – 20 years growth charts are available at: www.cdc.gov/growthcharts.

Participant Category and Priority Level

Category	Priority
Infants	I
Children	III

Justification

The rise in the prevalence of overweight and obesity in children and adolescents is one of the most important public health issues in the United States today. The National Health and Nutrition Examination Survey (NHANES) from the mid-1960s to the early 2000s document a significant increase in overweight among children from preschool age through adolescence. These trends parallel a concurrent increase in obesity among adults, suggesting that fundamental shifts in dietary and/or physical activity behaviors are having an adverse effect on overall energy balance (3).

BMI is a measure of body weight adjusted for height. While not a direct measure of body fatness, BMI is a useful screening tool to assess adiposity (3). Children > 2 years of age, with a BMI-for-age > 85th and < 95th percentile are considered overweight and those at or above the 95th percentile, obese (4). Research on BMI and body fatness shows that the majority of children with BMI-for-age at or above the 95th percentile have high adiposity and less than one-half of the children in the 85th to < 95th percentiles have high adiposity (4). Although an imperfect tool, elevated BMI among children most often indicates increased risk for future adverse health outcomes and/or development of diseases (5). BMI should serve as the initial screen and as the starting point for classification of health risks (3).

Increasingly, attention is being focused on the need for comprehensive strategies that focus on preventing overweight/obesity and a sedentary lifestyle for all ages. Scientific evidence suggests that the presence of obesity in a parent greatly increases the risk of overweight in preschoolers, even when no other overt signs of increasing body mass are present (6). The presence of parental obesity should lead to greater efforts by nutrition services staff to assist families in establishing or improving healthy behaviors (3).

Implications for WIC Nutrition Services

The WIC Program plays an important role in public health efforts to reduce the prevalence of obesity by actively identifying and enrolling infants and children who may be overweight or at risk of overweight in childhood or adolescence. When identifying this risk, it is important to communicate it in a way that is supportive, nonjudgmental, and with a careful choice of words to convey an empathetic attitude and to minimize embarrassment or harm to a child's self-esteem (4). In recognition of the importance of language, the 2007 American Medical Association expert committee report recommends the use of the terms *overweight* and *obese* for documentation and risk assessment **only** and the use of more neutral terms (e.g., *weight disproportional to height, excess weight, BMI*) when discussing a child's weight with a parent/caregiver (3) .

BMI is calculated and plotted on growth charts at each WIC certification. However, growth charts are meant to be used as a screening tool and comprise only one aspect of the overall growth assessment. A clinical assessment to determine if a child is at a healthy weight is more complex. Weight classification (derived from the growth chart) should be integrated with the growth pattern, familial obesity, medical risks, and dietary and physical activity habits to determine the child's obesity risk (1,5).

The goal in WIC nutrition counseling is to help the child achieve recommended rates of growth and development. WIC staff can frame the discussion to make achieving normal growth a shared goal of the WIC Program and the parent/caregiver. Studies have shown that the early childhood eating environment provides a great opportunity for preventive intervention (7). Parents/caregivers of infants and toddlers may need education on recognition of satiety cues and other physiological needs that lead to crying, and ways to comfort a child (holding, reading, rocking) other than by feeding. Young children look upon their parents as role models for eating behaviors. Through client-centered counseling, WIC staff can emphasize

the importance of prevention and can assist families in making changes that improve parenting skills that promote healthy eating, and physical activity behaviors and a healthy weight in children. Also, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population and can be tailored to meet the needs of individual participants.

Beliefs about what is an attractive or healthy weight, the importance of physical activity, what foods are desirable or appropriate for parents to provide to children, family mealtime routines, and many other lifestyle habits are influenced by different cultures, and should be considered during the nutrition assessment and counseling (8). The following resources for obesity prevention can be found at:

- Fit WIC Materials: http://www.nal.usda.gov/wicworks/Sharing_Center/gallery/foodfunfamilies.htm.
- MyPryramid for Preschoolers: http://www.mypyramid.gov/preschoolers/index.html

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

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2. Grummer-Strawn LM, Reinold C, Krebs NF. Use of World Health Organization and CDC growth charts for children aged 0-59 Months in the United States. CDC Morbidity and Mortality Weekly Report (September 2010); no 59(rr09); 1-15. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1_w. Accessed September 2010.
3. Barlow SE, Expert Committee. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. Pediatrics. 2007; 120; S164-S192.
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Clarification

The 2000 CDC Birth to 36 months growth charts cannot be used as a screening tool for the purpose of assigning this risk because these charts are based on recumbent length rather than standing height data. However, these charts may be used as an assessment tool for evaluating growth in children aged 24-36 months who are not able to be measured for the standing height required for the 2000 CDC 2-20 years growth charts.

Abbreviated Body Mass Index (BMI) Table*

Height	Inches	Weight (lbs) equal to BMI 30
4' 10"	58	143
4' 11"	59	148
5' 0"	60	153
5' 1"	61	158
5' 2"	62	164
5' 3"	63	169
5' 4"	64	174
5' 5"	65	180
5' 6"	66	186
5' 7"	67	191
5' 8"	68	197
5' 9"	69	203
5' 10"	70	209
5' 11"	71	215
5' 12"	72	221
6' 1"	73	227
6' 2"	74	233
6' 3"	75	240
*This table may be used to determine parental (male or female) obesity (BMI > 30).		

Source

Evidence Report of Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, 1998. National Institutes of Health/National Heart, Lung, and Blood Institute (NHLBI). Note: A complete BMI table is available on the NHLBI website: www.nhlbi.gov/guidelines/obesity/ob_home.htm.

115 High Weight-for Length (Infants and Children < 24 Months of Age)

Definition/Cut-Off Value

High weight-for-length for infants and children < 24 months of age is defined as follows:

Age	Cut-Off Value
Birth to < 24 months	≥ 98th percentile weight-for-length as plotted on the Centers for Disease Control and Prevention (CDC), Birth to 24 months gender specific growth charts (1) (available at: www.cdc.gov/growthcharts).*
*Based on the 2006 World Health Organization (WHO) international growth standards (2). CDC labels the 97.7th percentile as the 98th percentile on the Birth to 24 months gender specific growth charts. For more information about the percentile cut-off, please see Clarification.	

Participant Category and Priority Level

Category	Priority
Infants	I
Children (< 24 months of age)	III

Justification

In 2006, WHO released international growth standards for infants and children aged 0-59 months (2), similar to the 2000 CDC growth references. Since then, the CDC has developed Birth to 24 months growth charts, based on the WHO growth standards, and recommends their use in the United States (1). For persons 2-20 years, the 2000 CDC growth charts will continue to be used (1).

The WHO and CDC growth charts are similar in that both describe weight-for-age, length (or stature)-for- age, weight-for-length (or stature) and body mass index (BMI) for age. However, they differ in the approach taken to create the growth charts. The WHO growth charts are growth standards that describe how healthy children grow under optimal environmental and health conditions. The 2000 CDC charts are a growth reference, not a standard, and describe how certain children grew in a particular place and time (2).

The WHO growth standards for children < 24 months are based on data collected from 1997-2003 in 6 countries (including the U.S.), from children who were born between 37 and 42 weeks gestation, breastfed for at least 12 months, and introduced to complementary food by at least 6 months but not before 4 months. Infants and children of low-income mothers and/or mothers who smoked were not included in the data sample (2).

The 2000 CDC charts for infants and children < 36 months are based on birth weight (from 1968 to 1980 and from 1985 to 1994) and birth length data (from 1989 to1994) obtained from U.S. birth certificates; National Health and Nutrition Examination Survey (NHANES) data; and, measurements from infants who had been breastfed and formula fed (approximately 50% ever breastfed and approximately 33% who were still breastfeeding at 3 months). Very low birth weight infants were not included in the sample population. This was the only exclusion criterion applied to the sample population (2, 3).

Prior to making its recommendation, CDC convened an Expert Panel with the National Institutes of Health and the American Academy of Pediatrics to review the scientific evidence and discuss the potential use of the WHO growth standards in the U.S. The recommendation to use WHO growth standards for infants and children < 24 months was made on the basis of input from the Expert Panel. In addition, CDC concluded that the WHO growth standards are based on a high quality study and, since breastfeeding is the recommended infant feeding practice, it is appropriate to use the breastfed infant as the standard against which all other infants are compared (2).

The WHO growth standards use values of 2 standard deviations away from the median to identify children whose growth might be indicative of adverse health conditions (1). The CDC Birth to 24 months growth charts (based on the WHO growth standards) labels 2 standard deviations above the median as the 97.7th percentile. Thus, an infant or child (< 24 months) is categorized as high weight-for-length when plotted at or above the 97.7th percentile, labeled as the 98th percentile on the CDC Birth to 24 months growth charts. The CDC recommends that all infants and children < 24 months be assessed using the CDC Birth to 24 months growth charts regardless of type of feeding (formula or breastfed) (2). (See Clarification for information about standard deviations and the cut-off used to determine high weight-for-length.)

Implications for WIC Nutrition Services

The WIC Program plays an important role in public health efforts to reduce the prevalence of obesity by actively identifying and enrolling infants and young children who may be at risk of overweight/obesity in later childhood or adolescence. When identifying this risk, it is important to communicate with parents/caregivers in a way that is supportive and nonjudgmental, and with a careful choice of words that convey an empathetic attitude and minimize embarrassment or harm to a child's self-esteem (4). In recognition of the importance of language, the 2007 American Medical Association Expert Committee Report recommends the use of more neutral terms such as weight disproportional to height, excess weight, and high weight-for-length when communicating with a parent/caregiver (5).

Height and weight measurements are plotted on growth charts at each WIC certification. However, growth charts are meant to be used as a screening tool and comprise only one aspect of the overall growth assessment. A clinical assessment to determine if a child is at a healthy weight is more complex. Weight classification (derived from the growth chart) should be integrated with the growth pattern, familial obesity, medical risks, and dietary and physical activity habits to determine the child's obesity risk (3, 6).

The goal in WIC nutrition counseling is to help the child achieve recommended rates of growth and development. WIC staff can frame the discussion to make achieving normal growth a shared goal of the WIC Program and the parent/caregiver. Studies have shown that the early childhood eating environment provides a great opportunity for preventive intervention (7). Parents/caregivers of infants and toddlers may need education on recognition of satiety cues and other physiological needs that lead to crying, and ways to comfort a child (holding, reading, rocking) other than by feeding. Young children look upon their parents as role models for eating behaviors. Through client-centered counseling, WIC staff can emphasize the importance of prevention and can assist families in making changes that improve parenting skills that promote healthy eating, physical activity behaviors and a healthy weight in children. Also, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population and can be tailored to meet the needs of individual participants.

Beliefs about what is an attractive or healthy weight, the importance of physical activity, what foods are desirable or appropriate for parents to provide to children, family mealtime routines, and many other lifestyle habits are influenced by different cultures, and should be considered during the nutrition assessment and counseling (8). The following resources for obesity prevention can be found at:

- Fit WIC Materials: http://www.nal.usda.gov/wicworks/Sharing_Center/gallery/foodfunfamilies.htm.
- MyPryramid for Preschoolers: http://www.mypyramid.gov/preschoolers/index.html.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC growth charts for children aged 0-59 months in the United States. MMWR 2010; 59(No. RR-9). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1_w. Accessed September 2010.
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Clarification

Standard deviation is a measurement widely used in statistical analysis. It shows how much variation there is from the median. The WHO growth charts use standard deviations to illustrate the proximity of a given child's growth from that of the average child of the same age and gender. For infants and children < 24 months of age, 2 standard deviations above the median indicates high weight-for-length. A measurement of 2 standard deviations below the median indicates underweight. Since most health care providers in the U.S. are more familiar with percentiles, the CDC developed growth charts based on the WHO growth standards, but converted standard deviations into percentile readings. Two standard deviations above the median is the 97.7th percentile; however, for ease of use, CDC labels it as the 98th percentile on the hard copy Birth to 24 months growth charts. Electronic charts should use the 97.7th percentile as the cut-off.

Participant Category and Priority Level

Category	Priority
Infants	I
Children	III

Justification

The CDC uses the 2.3rd percentile (for birth to 24 months of age) and the 5th percentile (for 2-5 years of age) stature-for-age, as the cut-offs to define short stature in its Pediatric Nutrition Surveillance System (1, 2).

However, CDC does not have a position regarding the cut-off percentile which should be used to determine at risk of short stature as a nutritional risk in the WIC Program. At risk of short stature is included in this criterion to reflect the preventive emphasis of the WIC Program.

Abnormally short stature in infants and children is widely recognized as a response to an inadequate nutrient supply at the cellular level (4). This indicator can help identify children whose growth is stunted due to prolonged undernutrition or repeated illness (3). Short stature is related to a lack of total dietary energy and to poor dietary quality that provides inadequate protein, particularly animal protein, and inadequate amounts of micronutrients such as zinc, vitamin A, iron, copper, iodine, calcium, and phosphorus (4). In these circumstances, maintenance of basic metabolic functions takes precedence, and thus resources are diverted from linear growth.

Demonstrable differences in stature exist among children of different ethnic and racial groups. However, racial and ethnic differences are relatively minor compared with environmental factors (1). Growth patterns of children of racial groups whose short stature has traditionally been attributed to genetics have been observed to increase in rate and in final height under conditions of improved nutrition (5, 6).

Short stature may also result from disease conditions such as endocrine disturbances, inborn errors of metabolism, intrinsic bone diseases, chromosomal defects, fetal alcohol syndrome, and chronic systemic diseases (4).

Implications for WIC Nutrition Services

Participation in WIC has been associated with improved growth in both weight and height in children (7). A more in-depth dietary assessment and/or referral to a health care provider may be necessary to determine if short stature is a result of dietary inadequacy or a disease condition. Also, more frequent follow-up to monitor growth is appropriate for children in these categories. Through client-centered counseling WIC staff can assist families in improving dietary intake to promote healthy growth and development. In addition, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC growth charts for children aged 0-59 months in the United States. MMWR 2010; 59(No. RR-9). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1_w. Accessed September 2010.
2. Kuczmarski RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Advance data from vital and health statistics; no. 314. Hyattsville, Maryland: National Center for Health Statistics. 2000.
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4. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 104-109.
5. Pipes PL, Trahms CM. Nutrition in infancy and childhood, 6th edition. Seattle (WA): WCB/McGraw- Hill; 1997. p. 2.
6. Berhane R, Dietz WH. Clinical assessment of growth. In: Kessler DB, Dawson P., editors. Failure to thrive and pediatric undernutrition: A transdisciplinary approach. Baltimore (MD): Paul H. Brooks Publishing Company, Inc.; 1999. p. 199.
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Clarification

The cut-off for short stature for infants and children > 24 months is 2.3; however, for ease of use, CDC labels it as the 2nd percentile on the Birth to 24 months hard copy growth charts. Electronic charts should use the 2.3rd percentile as the cut-off.

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121 Short Stature or At Risk of Short Stature (Infants and Children)

Definition/Cut-Off Value

Short Stature and at risk of short stature are defined as follows:

Height Classification	Age	Cut-off value
121B Short Stature	Birth to < 24 months	≤ 2nd percentile length-for-age as plotted on the Centers for Disease Control and Prevention (CDC) Birth to 24 months gender specific growth charts (1).*
	2 – 5 years	≤ 5th percentile stature-for-age as plotted on the 2000 CDC age/gender specific growth charts (2).
121A At Risk of Short Stature	Birth to < 24 months	> 2nd percentile and ≤ 5th percentile length-for-age as plotted on the CDC Birth to 24 months gender specific growth charts (1).*
	2 – 5 years	> 5th percentile and ≤ 10th percentile stature-for-age as plotted on the 2000 CDC age/gender specific growth charts (2).

**Based on 2006 World Health Organization international growth standards (3). CDC labels the 2.3rd percentile as the 2nd percentile on the Birth to 24 months gender specific growth charts. For more information about the percentile cut-off, please see Clarification.*

Notes:

1. The Birth to 24 months and the 2000 CDC growth charts are available at: www.cdc.gov/growthcharts.
2. For premature infants and children (with a history of prematurity) up to 2 years of age, assignment of this risk criterion will be based on adjusted gestational age. For information about adjusting for gestational age see: Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants.

Participant Category and Priority Level

Category	Priority
Infants	I
Children	III

Justification

The CDC uses the 2.3rd percentile (for birth to 24 months of age) and the 5th percentile (for 2-5 years of age) stature-for-age, as the cut-offs to define short stature in its Pediatric Nutrition Surveillance System (1, 2).

However, CDC does not have a position regarding the cut-off percentile which should be used to determine *at risk of short stature* as a nutritional risk in the WIC Program. *At risk of short stature* is included in this criterion to reflect the preventive emphasis of the WIC Program.

Abnormally short stature in infants and children is widely recognized as a response to an inadequate nutrient supply at the cellular level (4). This indicator can help identify children whose growth is stunted due to prolonged undernutrition or repeated illness (3). Short stature is related to a lack of total dietary energy and to poor dietary quality that provides inadequate protein, particularly animal protein, and inadequate amounts of micronutrients such as zinc, vitamin A, iron, copper, iodine, calcium, and phosphorus (4). In these circumstances, maintenance of basic metabolic functions takes precedence, and thus resources are diverted from linear growth.

Demonstrable differences in stature exist among children of different ethnic and racial groups. However, racial and ethnic differences are relatively minor compared with environmental factors (1). Growth patterns of children of racial groups whose short stature has traditionally been attributed to genetics have been observed to increase in rate and in final height under conditions of improved nutrition (5, 6).

Short stature may also result from disease conditions such as endocrine disturbances, inborn errors of metabolism, intrinsic bone diseases, chromosomal defects, fetal alcohol syndrome, and chronic systemic diseases (4).

Implications for WIC Nutrition Services

Participation in WIC has been associated with improved growth in both weight and height in children (7). A more in-depth dietary assessment and/or referral to a health care provider may be necessary to determine if short stature is a result of dietary inadequacy or a disease condition. Also, more frequent follow-up to monitor growth is appropriate for children in these categories. Through client-centered counseling WIC staff can assist families in improving dietary intake to promote healthy growth and development. In addition, the foods provided by the WIC Program are scientifically-based and intended to address the supplemental nutritional needs of the Program's target population, and can be tailored to meet the needs of individual participants.

In addition, WIC staff can greatly assist families by providing referrals to medical providers and other services, if available, in their community. Such resources may provide the recommended medical assessments, in order to rule out or confirm medical conditions, and offer treatment when necessary and/or in cases where growth improvement is slow to respond to dietary interventions.

References

1. Centers for Disease Control and Prevention. Use of World Health Organization and CDC growth charts for children aged 0-59 months in the United States. MMWR 2010; 59(No. RR-9). Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm?s_cid=rr5909a1_w. Accessed September 2010.
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4. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 104-109.
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6. Berhane R, Dietz WH. Clinical assessment of growth. In: Kessler DB, Dawson P., editors. Failure to thrive and pediatric undernutrition: A transdisciplinary approach. Baltimore (MD): Paul H. Brooks Publishing Company, Inc.; 1999. p. 199.
7. Disbrow DD. The costs and benefits of nutrition services: a literature review. J Am Diet Assoc. 1989; 89:S3-66.

Clarification

The cut-off for short stature for infants and children > 24 months is 2.3; however, for ease of use, CDC labels it as the 2nd percentile on the Birth to 24 months hard copy growth charts. Electronic charts should use the 2.3rd percentile as the cut-off.

131 Low Maternal Weight Gain

Definition/Cut-off Value

Low maternal weight gain is defined as: low weight gain at any point in pregnancy. Using an Institute of Medicine (IOM)-based weight gain grid, user assigns anytime a pregnant woman's weight plots at any point beneath the bottom line of the appropriate weight gain range for her respective prepregnancy weight category.

Participant Category and Priority Level

Category	Priority
Pregnant	I

Justification

Low maternal weight gain is associated with an increased risk of small for gestational age (SGA) infants, especially in underweight and normal-weight women (1). In addition, low maternal weight gain is associated with failure to initiate breastfeeding and preterm birth among underweight and to a lesser extent normal weight women (1).

The 2009 Institute of Medicine (IOM) report: Weight Gain During Pregnancy: Reexamining the Guidelines updated the pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (2). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short-and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on prepregnancy weight status categories are associated with improved maternal and child health outcomes (1).

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents. It is recognized that the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut-offs will be used for all women regardless of age. However, due to the lack of research on relevant BMI cut-offs for pregnant and postpartum adolescents, professionals should use all of the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

For twin gestations, the 2009 IOM recommendations provide provisional guidelines: normal-weight women should gain 37-54 pounds; overweight women, 31-50 pounds; and obese women, 25-42 pounds. There was insufficient information for the IOM committee to develop even provisional guidelines for underweight women with multiple fetuses (1). A consistent rate of weight gain is advisable. A gain of 1.5 pounds per week during the second and third trimesters has been associated with a reduced risk of preterm and low- birth weight delivery in twin pregnancy (3). In triplet pregnancies the overall gain should be around 50 pounds with a steady rate of gain of approximately 1.5 pounds per week throughout the pregnancy (3). For WIC eligibility determinations, multi-fetal pregnancies are considered a nutrition risk in and of themselves (Risk #335, Multi-Fetal Gestation), aside from the weight gain issue.

The supplemental foods, nutrition education, and counseling related to the weight gain guidelines provided by the WIC Program may improve maternal weight status and infant outcomes (4).

References

1. Institute of Medicine. Weight gain during pregnancy: reexamining the guidelines (Prepublication Copy). National Academy Press, Washington, D.C.; 2009. www.nap.edu. Accessed June 2009.
2. National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults. NIH Publication No. 98-4083, 1998. www.nhlbi.nih.gov. Accessed June 2009.
3. Brown JE and Carlson M. Nutrition and multifetal pregnancy. J Am Diet Assoc. 2000; 100:343-348.
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1. Brown JE, Schloesser PT. Pregnancy weight status, prenatal weight gain, and the outcome of term twin gestation. Am. J. Obstet. Gynecol. 1990; 162:182-6.
2. Parker JD, Abrams B. Prenatal weight gain advice: an examination of the recent prenatal weight gain recommendations of the Institute of Medicine. Obstet Gynecol, 1992; 79:664-9.
3. Siega-Riz AM, Adair LS, Hobel CJ. Institute of Medicine maternal weight gain recommendations and pregnancy outcomes in a predominately Hispanic population. Obstet Gynecol, 1994; 84:565- 73.
4. Suitor CW, editor. Maternal weight gain: a report of an expert work group. Arlington, Virginia: National Center for Education in Maternal and Child Health; 1997. Sponsored by Maternal and Child Health Bureau, Health Resources and Services Administration, Public Health Service, U.S. Department of Health and Human Services.
5. Williams RL, Creasy RK, Cunningham GC, Hawes WE, Norris FD, Tashiro M. Fetal growth and perinatal viability in California. Obstet.Gynecol. 1982; 59:624-32.

Clarification

The Centers for Disease Control and Prevention (CDC) defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:

- First Trimester: 0-13 weeks
- Second Trimester: 14-26 weeks
- Third Trimester: 27-40 weeks

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.

(BMI) Table for Determining Weight Classification for Women (1)

Height (Inches)	Underweight BMI < 18.5	Normal Weight BMI 18.5-24.9	Overweight BMI 25.0-29.9	Obese BMI ≥ 30.0
58”	< 89 lbs	89-118 lbs	119-142 lbs	> 142 lbs
59”	< 92 lbs	92-123 lbs	124-147 lbs	> 147 lbs
60”	< 95 lbs	95-127 lbs	128-152 lbs	> 152 lbs
61”	< 98 lbs	98-131 lbs	132-157 lbs	> 157 lbs
62”	< 101 lbs	101-135 lbs	136-163 lbs	> 163 lbs
63”	< 105 lbs	105-140 lbs	141-168 lbs	> 168 lbs
64”	< 108 lbs	108-144 lbs	145-173 lbs	> 173 lbs
65”	< 111 lbs	111-149 lbs	150-179 lbs	> 179 lbs
66”	< 115 lbs	115-154 lbs	155-185 lbs	> 185 lbs
67”	< 118 lbs	118-158 lbs	159-190 lbs	> 190 lbs
68”	< 122 lbs	122-163 lbs	164-196 lbs	> 196 lbs
69”	< 125 lbs	125-168 lbs	169-202 lbs	> 202 lbs
70”	< 129 lbs	129-173 lbs	174-208 lbs	> 208 lbs
71”	< 133 lbs	133-178 lbs	179-214 lbs	> 214 lbs
72”	< 137 lbs	137-183 lbs	184-220 lbs	> 220 lbs

(1) Adapted from the Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH). NIH Publication No. 98-4083.

132 Maternal Weight Loss During Pregnancy

Definition/Cut-off Value

Maternal weight loss during pregnancy is defined as follows:

Definition	Trimester
Any weight loss below pregravid weight	1st
Weight loss of ≥ 2 pounds (≥ 1 kg)	2nd or 3rd (14-40 weeks gestation)

Participant Category and Priority Level

Category	Priority
Pregnant Women	I

Justification

Weight loss during pregnancy may indicate underlying dietary or health practices or health or social conditions associated with poor pregnancy outcomes. These outcomes could be improved by the supplemental food, nutrition education, and referrals provided by the WIC Program.

References

1. Brown JE. Prenatal weight gain considerations for WIC. Final report. Commissioned by the Risk Identification and Selection Collaborative. 1998.

2. Centers for Disease Control and Prevention. Prenatal Nutrition Surveillance System User's Manual. Atlanta: CDC, 1994.

3. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.; 1996.

4. Metropolitan Life Insurance Company. New weight standards for men and women. Stat.Bull.Metrop.Life Insur. Co., 1959.

Clarification

The Centers for Disease Control and Prevention (CDC) defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:

- First Trimester: 0-13 weeks
- Second Trimester: 14-26 weeks
- Third Trimester: 27-40 weeks

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.

133 High Maternal Weight Gain

Definition/Cut-off Value

Pregnant Women:

At any point in a singleton pregnancy, weight plots at any point above the top line of the appropriate weight gain range for her respective prepregnancy weight category.

Breastfeeding or Non-Breastfeeding Women (most recent pregnancy only):

For the most recent pregnancy only, total gestational weight gain exceeded the upper limit of the IOM's recommended range based on Body Mass Index (BMI) for singleton pregnancies, as follows:

Pregnancy Weight Classification	BMI	Total Weight Gain (lbs.)
Underweight	< 18.5	> 40
Normal Weight	18.5 to 24.9	> 35
Overweight	25 to 29.9	> 25
Obese	> 30	> 20
Multi-fetal Pregnancies:	See Justification for more information	
Note: A BMI is attached to assist in determining weight classification. Also, until research supports the use of different BMI cut-offs to determine weight categories for adolescent prepregnancies, the same BMI cut-offs will be used for all women, regardless of age, when determining WIC eligibility. (See Justification for a more detailed explanation.)		

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Women with excessive gestational weight gains are at increased risk for cesarean delivery and delivering large for gestational age infants that can secondarily lead to complications during labor and delivery. There is a strong association between higher maternal weight gain and both postpartum weight retention and subsequent maternal obesity. High maternal weight gain may be associated with glucose abnormalities and gestational hypertension disorders, but the evidence is inconclusive (1).

Childhood obesity is one of the most important long-term health outcomes related to high maternal weight gain. A number of epidemiologic studies show that high maternal weight gain is associated with childhood obesity as measured by BMI (1).

The 2009 Institute of Medicine (IOM) report: Weight Gain During Pregnancy: Reexamining the Guidelines updated the pregnancy weight categories to conform to the categories developed by the World Health Organization and adopted by the National Heart, Lung and Blood Institute in 1998 (2). The reexamination of the guidelines consisted of a review of the determinants of a wide range of short-and long-term consequences of variation in weight gain during pregnancy for both the mother and her infant. The IOM prenatal weight gain recommendations based on prepregnancy weight status categories are associated with improved maternal and child health outcomes (1).

Included in the 2009 IOM guidelines is the recommendation that the BMI weight categories used for adult women be used for pregnant adolescents as well. More research is needed to determine whether special categories are needed for adolescents. It is recognized that the IOM cut-offs for defining weight categories will classify some adolescents differently than the CDC BMI-for-age charts. For the purpose of WIC eligibility determination, the IOM cut-offs will be used for all women regardless of age. However, due to the lack of research on relevant BMI cut-offs for pregnant and postpartum adolescents, professionals should use all of the tools available to them to assess these applicants' anthropometric status and tailor nutrition counseling accordingly.

For twin gestations, the 2009 IOM recommendations provide provisional guidelines: normal weight women should gain 37-54 pounds; overweight women, 31-50 pounds; and obese women, 25-42 pounds. There was insufficient information for the IOM committee to develop even provisional guidelines for underweight women with multiple fetuses (1). However, a consistent rate of weight gain is advisable. A gain of 1.5 pounds per week during the second and third trimesters has been associated with a reduced risk of preterm and low-birth weight delivery in twin pregnancy (3). In triplet pregnancies the overall gain should be around 50 pounds with a steady rate of gain of approximately 1.5 pounds per week throughout the pregnancy (3). Education by the WIC nutritionist should address a steady rate of weight gain that is higher than for singleton pregnancies. For WIC eligibility determinations, multi-fetal pregnancies are considered a nutrition risk in and of themselves (Risk #335, Multi-Fetal Gestation), aside from the weight gain issue.

The supplemental foods, nutrition education, and counseling related to the weight gain guidelines provided by the WIC Program may improve maternal weight status and infant outcomes (4). In addition, WIC nutritionists can play an important role, through nutrition education and physical activity promotion, in assisting postpartum women achieve and maintain a healthy weight.

References

1. Institute of Medicine. Weight gain during pregnancy: reexamining the guidelines (Prepublication Copy). National Academy Press, Washington, D.C.; 2009. www.nap.edu. Accessed June 2009.
2. National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults. NIH Publication No. 98-4083, 1998. www.nhlbi.nih.gov. Accessed June 2009.

3. Brown JE and Carlson M. Nutrition and multifetal pregnancy. J Am Diet Assoc. 2000; 100:343-348.

4. Institute of Medicine. WIC nutrition risk criteria: a scientific assessment. National Academy Press, Washington, D.C.; 1996.

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1. Carmichael S, Abrams B, Selvin S. The pattern of maternal weight gain in women with good pregnancy outcomes. Am.J.Pub.Hlth. 1997; 87; 12:1984-1988.

2. Brown JE, Schloesser PT. Pregnancy weight status, prenatal weight gain, and the outcome of term twin gestation. Am. J. Obstet. Gynecol. 1990; 162:182-6.

3. Parker JD, Abrams B. Prenatal weight gain advice: an examination of the recent prenatal weight gain recommendations of the Institute of Medicine. Obstet Gynecol, 1992; 79:664-9.

4. Siega-Riz AM, Adair LS, Hobel CJ. Institute of Medicine maternal weight gain recommendations and pregnancy outcomes in a predominately Hispanic population. Obstet Gynecol, 1994; 84:565- 73.

5. Suitor CW, editor. Maternal weight gain: a report of an expert work group. Arlington, Virginia: National Center for Education in Maternal and Child Health; 1997. Sponsored by Maternal and Child Health Bureau, Health Resources and Services Administration, Public Health Service, U.S. Department of Health and Human Services.

6. Waller K. Why neural tube defects are increased in obese women. Contemporary OB/GYN 1997; p. 25-32.

Clarification

The Centers for Disease Control and Prevention (CDC) defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:

- First Trimester: 0-13 weeks
- Second Trimester: 14-26 weeks
- Third Trimester: 27-40 weeks

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.

BMI Table for Determining Weight Classifications for Women (1)

Height (Inches)	Underweight BMI < 18.5	Normal Weight BMI 18.5-24.9	Overweight BMI 25.0-29.9	Obese BMI ≥ 30.0
58”	< 89 lbs	89-118 lbs	119-142 lbs	> 142 lbs
59”	< 92 lbs	92-123 lbs	124-147 lbs	> 147 lbs
60”	< 95 lbs	95-127 lbs	128-152 lbs	> 152 lbs
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62”	< 101 lbs	101-135 lbs	136-163 lbs	> 163 lbs
63”	< 105 lbs	105-140 lbs	141-168 lbs	> 168 lbs
64”	< 108 lbs	108-144 lbs	145-173 lbs	> 173 lbs
65”	< 111 lbs	111-149 lbs	150-179 lbs	> 179 lbs
66”	< 115 lbs	115-154 lbs	155-185 lbs	> 185 lbs
67”	< 118 lbs	118-158 lbs	159-190 lbs	> 190 lbs
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69”	< 125 lbs	125-168 lbs	169-202 lbs	> 202 lbs
70”	< 129 lbs	129-173 lbs	174-208 lbs	> 208 lbs
71”	< 133 lbs	133-178 lbs	179-214 lbs	> 214 lbs
72”	< 137 lbs	137-183 lbs	184-220 lbs	> 220 lbs

(1) Adapted from the Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH). NIH Publication No. 98-4083.

Failure to Thrive

Definition/Cut-off Value

Presence of failure to thrive (FTT) diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Note: For premature infants with a diagnosis of FTT also see: "Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants" (FNS Policy Memorandum 98-9, Revision 7, April 2004).

Participant Category and Priority Level

Category	Priority
Infants	I
Children	III

Justification

Failure to thrive (FTT) is a serious growth problem with an often complex etiology. Some of the indicators that a physician might use to diagnose FTT include:

- Weight consistently below the 3rd percentile for age
- Weight less than 80% of ideal weight for height/age
- Progressive fall-off in weight to below the 3rd percentile
- A decrease in expected rate of growth along the child's previously defined growth curve irrespective of its relationship to the 3rd percentile (1)

FTT may be a mild form of Protein Energy Malnutrition (PEM) that is manifested by a reduction in rate of somatic growth. Regardless of the etiology of FTT, there is inadequate nutrition to support weight gain (2).

References

1. Berkow R, Fletcher AJ. The Merck manual of diagnosis and therapy. Rahway (NJ): Merck Sharp & Dohme Research Laboratories; 1992.
2. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 100.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

12/2013

135 Inadequate Growth

Definition/Cut-off Value

An inadequate rate of weight gain as defined below.

1. **Infants from birth to 1 month of age:**

Age	Definition
Infants from birth to 1 month of age	Excessive weight loss after birth (current weight is ≤ 92% of birth weight) ; or Not back to birth weight by 2 weeks of age

2. **Infants from 1 month to 12 months of age:**

Age	Definition
1 month to 12 months of age	Any weight gain less than the expected weight gain as calculated from the *Minimum Expected Weight Gain Tables* (Attachment 135-A, Tables #1-4) using current weight and the most recent previous weight.

3. **Children 12 months to 59 months of age:**

Age	Definition
12-59 months	Any weight gain less than the expected weight gain as calculated from the *Minimum Expected Weight Gain Tables* (Attachment 135-A,Table #5) using current weight and the most recent previous weight.

Participant Category and Priority Level

Category	Priority
Infants	I
Children	III

How to Assess for NRF 135: Inadequate Growth

When an infant or child is following their growth channel there is no reason to calculate for inadequate growth. Growth is considered adequate when the measurement plots stay inside the same growth channel.

However, a measurement that plots outside the child's growth channel indicates the need to know how much weight the child should have gained. The amount of weight the child should have gained is referred to as the minimum expected weight gain, or MEWG. To calculate MEWG, use Attachment 135-A: Minimum Expected Weight Gain Tables. Assign *NRF 135 Inadequate Growth* when an infant (one month of age and older) or child's actual weight gain is less than the ounces calculated using the MEWG tables for that same time period. All values in the MEWG tables are presented in ounces.

Follow these steps to assess for inadequate growth using the MEWG Tables (Attachment 135-A):

Infants from 1 month to 12 months of age (MEWG tables #1-4):

On the Weight for Age chart accessed from the Anthropometric Panel:

1. Look at the previous measure record.
2. Note the age in months and days.
3. Look at today's measurement record.
4. Note the age in months and days.
5. Use the chart below to convert the age to months and weeks.
   - To calculate weeks from days:
     - From 0 to 5 days = 0 weeks
     - From 6 to 11 days = 1 week
     - From 12 to 18 days = 2 weeks
     - From 19 to 25 days = 3 weeks
     - Over 25 days, add a month and 0 week
6. Using the MEWG Charts (Attachment 135-A, Tables #1-4), determine the minimum expected weight gain.
7. Look at the Wt Chg (Weight Change) between the last two visits and convert to ounces. If the weight change is less than the minimum expected weight gain, check the "135 - Inadequate Growth" box on the anthropometric panel.
8. If the period of time between the last two weights recorded cannot be assessed using the MEWG tables, then inadequate growth cannot be assessed.
9. Infants assigned NRF 135 who are less than 1 month of age must receive high risk consultation within 24 hours. Infants older than 1 month of age assigned NRF 135 must receive high risk consultation within 30 days of risk identification.

Children over 12 months of age:

On the Weight-for-Age chart accessed from the Anthropometric panel:

1. Look at the age in years and months next to the previous measurement date.
2. Look at the age in years and months next to today's measurement date.
3. Determine the difference in time between today's age and the age of the previous measurements.
4. Use the MEWG Chart for children > 12 months (Attachment 135-A, Table #5) to determine the minimum expected weight gain.

   Example:
   Today's age: 3 years 2 months
   Previous age: 2 years 8 months
   Difference: 6 months
   MEWG: 16.2 ounces (6 months x 2.7 ounces)

5. If the weight change is less than the minimum expected weight gain, check the "135 - Inadequate Growth" box on the anthropometric panel.
6. Assignment of NRF 135 to children can be either low or high risk.

NRF 135 High Risk Criteria for Children

Assign High Risk and refer to the WIC High Risk Counselor within 30 days when at least one of the following conditions is also present:

► *Growth drops two channels in 6 months or less for weight-for-age, length/height-for-age, or weight-for-length/height, or BMI-for-age; or*

► *Weight loss or no weight gain between two weights taken at least 3 months and no more than 6 months apart; or*

► *Both weight-for-age and length-for-age are less than the 5th percentile.*

Exception:
Child was previously assigned NRF 113 (BMI for age was ≥ the 95th percentile). At current WIC visit, child's growth does not meet minimum expected weight gain. ***Refer to WIC High Risk Counselor only when one or both of the following conditions are present:***

- *Current weight is below the 75th percentile BMI-for-age; - or-*
- *Weight loss or inadequate weight gain was due to illness, food insecurity, or improper dietary/feeding practices.*

Justification

Weight for age is a sensitive indicator of acute nutritional inadequacy. The rate of gain during infancy, especially early infancy is rapid, and abnormalities in rate of weight gain may often be detected in just a few months. There is little question that decrease in the rate of weight gain during infancy is the earliest indication of nutritional failure. In contrast, children beyond infancy grow rather slowly, and many months of observation may be required to demonstrate that the rate of weight gain is unusually slow. During the first eighteen months of life, the rate of change in weight fluctuates and then declines rapidly. Because of this deceleration it may be difficult to differentiate normal growth slowing from an abnormal rate. After 18 months weight gain becomes more linear so assessment becomes easier.

Infants and children with abnormally slow growth can benefit from nutrition and health interventions to improve weight and height gain. The diagnosis of slow growth must consider possible causes of growth changes including under eating and disease conditions. Under eating, for any number of reasons, and disease conditions are the main causes of abnormally slow growth. Factors associated with under eating by an infant or child include inadequate sources of nutrient dense foods; lack of social support for the caregiver; an adverse social and psychological environment; a disorganized family; depressed parents or caregivers; and the caregiver's lack of education, health and nutrition knowledge, mental and physical abilities, and responsibility for child care. There is good evidence that through nutrition education, supplemental foods, and referrals to other health and social services, participation in the WIC Program will benefit infants and children with slow growth. In keeping with the preventive nature of the WIC Program, a cut-off point approximating the 10th percentile rate of change in weight for age was chosen.

References

1. Baumgartner RN, Roche AF, Himes JH. Incremental growth tables: Supplementary to previously published charts. Am. J. Clin. Nutr. 1986; 43:711-722.
2. Fomon SJ. Nutrition of normal infants. St. Louis: Mosby, 1993.
3. Guo S, Roche AF, Foman SF, Nelson SE, Chumlea WC, Rogers RR, et al. Reference data on gains in weight and length during the first years of life. J Pediatr. 1991: 119:355-362
4. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.: 1996.

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Attachment 135-A: Minimum Expected Weight Gain Tables

Infants is under 6 months of age, measurements must be at least 1 month apart.

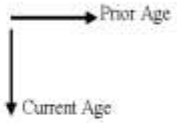
Infants over 6 months of age, measurements must be at least 3 months, but not more than 7 months apart.

Table #1

Minimum Expected Weight Gain (MEWG)

	0	0.1	0.2	0.3	1.0	1.1	1.2	1.3	2.0	2.1	2.2	2.3	3.0	3.1	3.2	3.3	4.0	4.1	4.2	4.3	5.0	5.1	5.2	5.3	6.0
1.0	19																								
1.1	25	19																							
1.2	31	26	21																						
1.3	37	32	27	23																					
2.0	46	40	36	31	27																				
2.1	50	45	40	36	31	23																			
2.2	55	49	45	40	36	27	21																		
2.3	59	54	49	45	40	32	26	19																	
3.0	65	59	55	50	46	37	31	25	19																
3.1	69	63	59	54	50	41	35	29	23	17															
3.2	73	67	63	58	54	45	39	33	27	21	17														
3.3	77	71	67	62	58	49	43	37	31	25	21	16													
4.0	82	76	72	67	63	54	48	42	36	30	26	21	17												
4.1	85	80	75	71	66	58	52	45	39	34	29	25	20	15											
4.2	89	83	79	74	70	61	55	49	43	37	33	28	24	19	15										
4.3	92	87	82	78	73	65	59	52	46	41	36	32	27	22	18	14									
5.0	97	91	87	82	78	69	63	57	51	45	41	36	32	27	23	19	15								
5.1	100	94	90	85	81	72	66	60	54	48	44	39	35	30	26	22	18	13							
5.2	103	97	93	88	84	75	69	63	57	51	47	42	38	33	29	25	21	16	13						
5.3	106	100	96	91	87	78	72	66	60	54	50	45	41	36	32	28	24	19	16	12					
6.0	110	104	100	95	91	82	76	70	64	58	54	49	45												
6.1	112	106	102	97	93	85	78	72	66	60	56	51	47	42											
6.2	114	109	104	100	95	87	81	74	68	63	58	54	49	44	40										
6.3	116	111	106	102	97	89	83	77	70	65	60	56	51	46	42	38									
7.0	119	114	109	105	100	92	86	79	73	68	63	59	54	49	45	41	37								

Age at first weight is along the top of the table. Age at current weight is along the left side of the table.
(Month. Week) First number is the months. The number of weeks follows the decimal.



Note: If infant is under six months of age, measurements must be at least 1 month apart. If infant is over six months of age, measurements must be at least 3 months, but not more than 7 months apart.

Minimum Expected Weight Gain (MEWG)

Table #2

	0.1	0.2	0.3	1.0	1.1	1.2	1.3	2.0	2.1	2.2	2.3	3.0	3.1	3.2	3.3	4.0	4.1	4.2	4.3	5.0	5.1	5.2	5.3	6.0
7.0	114	109	105	100	82	80	79	75	68	65	59	54	49	45	41	37								
7.1	116	111	107	102	84	80	82	77	70	65	61	56	51	47	43	39	35							
7.2		114	109	105	86	90	84	78	72	68	63	59	54	50	46	42	37	34						
7.3			111	107	99	92	86	80	74	70	65	61	56	52	48	44	39	36	32					
8.0				110	101	95	89	83	77	73	68	64	59	55	52	47	42	39	35	32				
8.1					104	97	91	85	79	75	70	66	61	57	53	49	44	41	37	34	30			
8.2						100	93	87	82	77	73	68	63	59	55	51	47	43	40	36	32	29		
8.3							96	89	84	79	75	70	65	61	57	53	49	45	42	38	34	31	28	
9.0								92	87	82	78	73	68	64	60	56	52	48	45	41	37	34	31	28

Table #3

	2.0	2.1	2.2	2.3	3.0	3.1	3.2	3.3	4.0	4.1	4.2	4.3	5.0	5.1	5.2	5.3	6.0	6.1	6.2	6.3	7.0	7.1	7.2	7.3	8.0
9.0	92	87	82	78	73	68	64	60	56	52	48	45	41	37	34	31	28								
9.1		89	84	80	75	70	66	62	58	54	50	47	43	39	36	33	30	28							
9.2			87	82	78	73	69	65	61	56	53	49	46	42	38	36	33	30	28						
9.3				84	80	75	71	67	63	58	55	51	48	44	41	38	35	32	30	28					
10.0					83	78	74	70	66	61	58	54	51	47	44	41	38	35	33	30	28				
10.1						80	76	72	68	63	60	56	53	49	46	43	40	37	35	33	30	28			
10.2							78	74	70	66	62	59	55	51	48	45	42	39	37	35	33	30	28		
10.3								76	72	68	64	61	57	53	50	47	44	42	39	37	35	32	30	28	
11.0									75	71	67	64	60	56	53	50	47	44	42	40	38	35	33	30	28

Age at first weight is along the top of the table. Age at current weight is along the left side of the table.
(Month.Week) First number is the months. The number of weeks follows the decimal.

Minimum Expected Weight Gain (MEWG)

Table #4

	4.0	4.1	4.2	4.3	5.0	5.1	5.2	5.3	6.0	6.1	6.2	6.3	7.0	7.1	7.2	7.3	8.0	8.1	8.2	8.3	9.0	9.1	9.2	9.3	10.
11.0	75	71	67	64	60	56	53	50	47	44	42	40	38	35	33	30	28								
11.1		73	69	66	62	58	55	52	49	47	44	42	40	37	35	33	30	28							
11.2			72	68	65	61	58	55	52	49	47	44	42	39	37	35	33	30	28						
11.3				70	67	63	60	57	54	51	49	47	44	42	39	37	35	33	30	28					
12.0					71	67	64	61	58	54	52	49	47	44	42	40	38	35	33	30	28				

Age at first weight is along the top of the table. Age at current weight is along the left side of the table.
(Month.Week) First number is the months.

Table #5

Use the MEWG Chart below for children >12 months of age. The first column is the amount of time between weights and the second column is the "minimal expected weight gain" for the time period. The period of time between weights may not be more than 7 months or less than 3 months. On the average, a child's MEWG is 2.7 ounces/month.

Table #5 Minimum Expected Weight Gain (MEWG)

Change in months	Weight Change
3	8.1 ounces
4	10.8 ounces
5	13.5 ounces
6	16.2 ounces
7	18.9 ounces

141 Low Birth Weight and Very Low Birth Weight

Definition/Cut-off Value

Low birth weight and very low birth weight are defined as follows:

Weight Classification	Cut-off Value
141A - Low Birth Weight (LBW)	Birth weight defined as ≤ 5 pounds 8 ounces (≤ 2500 g), for infants and children less than 24 months.
141B - Very Low Birth Weight (VLBW)	Birth weight defined as ≤ 3 pounds 5 ounces (≤ 1500 g), for infants and children less than 24 months.
Note: See "Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants" (FNS Policy Memorandum 98-9, Revision 7, April 2004) for more information about the anthropometric assessment and nutritional care of LBW and VLBW infants.	

Participant Category and Priority Level

Category	Priority
Infants	I
Children < 24 months	III

Justification

Low birth weight is one of the most important biologic predictors of infant death and deficiencies in physical and mental development during childhood among those babies who survive and continues to be a strong predictor of growth in early childhood. Infants and children born with LBW/VLBW, particularly if caused by fetal growth restriction, need an optimal nutrient intake to survive, meet the needs of an extended period of relatively rapid postnatal growth, and complete their growth and development (1).

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 97.

Additional Reference

1. Anderson DM. Nutritional implications of premature birth, birth weight, and gestational age classification In: Groh-Wargo S, Thompson M, Cox J, editors. Nutritional care for high-risk newborns. Rev. 3rd Ed. Chicago: Precept Press, Inc.; 2000.

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142 Prematurity

Definition/Cut-off Value

Birth at ≤ 37 weeks/0 days gestation (infants and children < 24 months of age).

*This is system assigned. The Compass system will round the infant/child's weeks gestation at birth to a whole number. Example: 37 weeks in Compass = 36 weeks/1 day to 37 weeks/ 0 days.

Diagnosed Weeks Gestation: This field is located on the Anthropometric panel next to the Calculated Weeks Gestation field. Staff should only document in the Diagnosed Weeks Gestation field when the participant states the infant was a different weeks gestation than the value in the Calculated Weeks Gestation field. Please note, if the Diagnosed Weeks Gestation field is completed, Compass will use this value to determine prematurity.

Note: See "Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants" (FNS Policy Memorandum 98-9, Revision 7, April 2004) for more information on the anthropometric assessment and nutritional care of premature infants.

Participant Category and Priority Level

Category	Priority
Infants	I
Children < 24 months	III

Justification

Premature infants may have physical problems that have nutritional implications, including immature sucking, swallowing and immature digestion and absorption of carbohydrates and lipids. Premature infants have increased nutrient and caloric needs for rapid growth. Premature infants grow well on breast milk. WIC promotes breastfeeding and provides nutrition education about infant feeding (1).

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 215.

151 Small for Gestational Age

Definition/Cut-off Value

Infants and children less than 24 months of age diagnosed as small for gestational age.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Note: See "Guidelines for Growth Charts and Gestational Age Adjustment for Low Birth Weight and Very Low Birth Weight Infants" (FNS Policy Memorandum 98-9, Revision 7, April 2004) for more discussion on the anthropometric assessment and nutritional care of SGA infants.

Participant Category and Priority Level

Category	Priority
Infants	I
Children < 24 months	III

Justification

Impairment of fetal growth can have adverse effects on the nutrition and health of children during infancy and childhood, including higher mortality and morbidity, slower physical growth, and possibly slower mental development. Infants who are small for gestational age (SGA) are also more likely to have congenital abnormalities. Severely growth-retarded infants are at markedly increased risk for fetal and neonatal death, hypoglycemia, hypocalcaemia, polycythemia, and neurocognitive complications of pre- and intrapartum hypoxia. Over the long term, growth-retarded infants may have permanent mild deficits in growth and neurocognitive development (1).

WIC staff should routinely complete anthropometric assessments and follow-up (to include coordination with and referral to, other health care providers and services) for infants/children with a diagnosis/history of SGA who have not yet demonstrated normal growth patterns.

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 100.

Additional References

1. Behrman RE, Kliegman R, Jenson HB. Nelson textbook of pediatrics. Philadelphia (PA): Saunders; 2000.
2. Groh-Wargo S, Thompson M, Cox J, editors. Nutritional care for high-risk newborns. Rev. 3rd edition. Chicago (IL): Precept Press, Inc.; 2000.
3. Kessler DB, Dawson, P, editors. Failure to thrive and pediatric under nutrition, a transdisciplinary approach. Baltimore (MD): Paul H. Brooks Publishing Company, Inc.; 1999.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

153 Large for Gestational Age

Definition/Cut-off Value

Birth weight ≥ 9 pounds (≥ 4000 g); or presence large for gestational age (LGA) condition as diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Infants	I

Justification

Infant mortality rates are higher among full-term infants who weigh greater than 4,000 g (greater than 9 lbs) than for infants weighing between 3,000 and 4,000 g (6.6 and 8.8 lbs). Oversized infants are usually born at term; however, preterm infants with weights high for gestational age also have significantly higher mortality rates than infants with comparable weights born at term. When large for gestational occurs with pre-term birth, the mortality risk is higher than when either condition exists alone (1). Very large infants regardless of their gestational age, have a higher incidence of birth injuries and congenital anomalies (especially congenital heart disease) and developmental and intellectual retardation (2).

Large for Gestational Age may be a result of maternal diabetes (which may or may not have been diagnosed before or during pregnancy) and may result in obesity in childhood that may extend into adult life (1).

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 117.
2. Behrman RE, Kliegman R, Jenson HB. Nelson textbook of pediatrics. Philadelphia (PA): Saunders; 2000. p. 384.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

201 Low Hematocrit/Low Hemoglobin

Definition/Cut-off Value

201 Low Hematocrit/Low Hemoglobin is defined as: a hemoglobin value below those listed in *Hemoglobin Levels Indicating NRF #201* table.

201B Severely Low Hematocrit/Hemoglobin is defined as: a hemoglobin value low enough to necessitate a medical referral as listed in the *Standards for Severely Low Hemoglobin-NRF #201b- High Risk Condition* table. When a participant is identified with severely low hemoglobin/hematocrit:

- **And permission has been granted to WIC to contact the health care provider** →print two *Abnormal Blood Work Notices*. Give one copy of the Notice to the endorser/participant. On the second *Notice*, write in the WIC High Risk Counselor's name and contact information and fax or email that *Notice* to the health care provider within 24 hours. Schedule an appointment with the WIC High Risk Counselor within the next 30 days.

- **And permission has not been granted for WIC to contact the health care provider** → print one *Abnormal Blood Work Notice*. Give this copy of the *Notice* to the endorser/participant and urge that it be shared with the participant's health care provider. Also, WIC staff must share this participant's hemoglobin level with the WIC High Risk Counselor within 24 hours.

Cut-off values are provided in the attached Tables 201-A and 201-B, based on the levels established by the Centers for Disease Control and Prevention (CDC). Adjustments for smoking and/or altitude are optional for State agencies as long as the cut-off values used are those indicated on the CDC tables.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non - Breastfeeding Women	III, IV, V, or VI
Infants	I
Children	III

Justification

Hemoglobin (Hb) and hematocrit (Hct) are the most commonly used tests to screen for iron deficiency anemia. Measurements of Hb and Hct reflect the amount of functional iron in the body. Changes in Hb concentration and Hct occur at the late stages of iron deficiency. While neither an Hb nor Hct test are direct measures of iron status and do not distinguish among different types of anemia, these tests are useful indicators of iron deficiency anemia.

Iron deficiency is by far the most common cause of anemia in children and women of childbearing age. It may be caused by a diet low in iron, insufficient assimilation of iron from the diet, increased iron requirements due to

growth or pregnancy, or blood loss. Anemia can impair energy metabolism, temperature regulation, immune function, and work performance. Anemia during pregnancy may increase the risk of prematurity, poor maternal weight gain, low birth weight, and infant mortality. In infants and children, even mild anemia may delay mental and motor development. The risk increases with the duration and severity of anemia, and early damages are unlikely to be reversed through later therapy.

References

1. Centers for Disease Control and Prevention. Criteria for anemia in children and childbearing-aged women. MMWR 1998:47: RR-3.
2. Centers for Disease Control and Prevention. Prenatal Nutrition Surveillance System User's Manual. Atlanta: CDC, 1994.
3. Institute of Medicine. Iron deficiency anemia: recommended guidelines for the prevention, detection, and management among U.S. children and women of childbearing age. National Academy Press, Washington, D.C.; 1993.
4. Institute of Medicine. Nutrition during pregnancy. National Academy Press, Washington, D.C.; 1990.
5. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.; 1996.

Clarification

Basis for blood work assessment: For pregnant women being assessed for iron deficiency anemia, blood work must be evaluated using trimester values established by CDC. Thus, a pregnant woman would be certified, based on the trimester in which her blood work was taken.

Definition of Trimester: CDC defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:

First Trimester: 0-13 weeks

Second Trimester: 14-26 weeks

Third Trimester: 27-40 weeks

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.

Adjustments for smoking: A State agency may elect to use only one cutoff for all smokers rather than making specific adjustments based on the individual applicant's smoking frequency. If the State chooses to use only one category for this issue, the "up to <1 pack/day" cutoff values category as shown on Tables 201- A and 201-B is the only one that may be used.

Table 201 – A: Standards for Low Hematocrit

		1st Trimester	2nd Trimester	3rd Trimester	Nonpreg 12 - < 15 yrs	Nonpreg 15 - < 18 yrs	Nonpreg ≥ 18 yrs	Infants 0 - < 6 mo	Infants 6 - < 12 mo	Child 1 - < 2 yrs	Child 2 - < 5 yrs
Altitude	Smoking	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <
No altitude adjustment	Nonsmokers	33.0	32.0	33.0	35.7	35.9	35.7		33.0	32.9	33.0
	Up to <1 pack/day	34.0	33.0	34.0	36.7	36.9	36.7				
	1 - 2 packs/day	34.5	33.5	34.5	37.2	37.4	37.2				
	> 2 packs/day	35.0	34.0	35.0	37.7	37.9	37.7				
3000-3999 ft	Nonsmokers	33.5	32.5	33.5	36.2	36.4	36.2		33.5	33.4	33.5
	Up to < 1 pack/day	34.5	33.5	34.5	37.2	37.4	37.2				
	1 - 2 packs/day	35.0	34.5	35.0	37.7	37.9	37.7				
	> 2 packs/day	35.5	34.5	35.5	38.2	38.4	38.2				
4000- 4999 ft	Nonsmokers	34.0	33.0	34.0	36.7	36.9	36.7		34.0	33.9	34.0
	Up to < 1 pack/day	35.0	34.0	35.0	37.7	37.9	37.7				
	1-2 packs/day	35.5	34.5	35.5	38.2	38.4	38.2				
	> 2 packs/day	36.0	35.0	36.0	38.7	38.9	38.7				
5000- 5999 ft	Nonsmokers	34.5	33.5	34.5	37.2	37.4	37.2		34.5	34.4	34.5
	Up to < 1 pack/day	35.5	34.5	35.5	38.2	38.4	38.2				
	1-2 packs/day	36.0	35.0	36.0	38.7	38.9	38.7				
	> 2 packs/day	36.5	35.5	36.5	39.2	39.4	39.2				
6000-6999 ft	Nonsmokers	35.0	34.0	35.0	37.7	37.9	37.7		35.0	34.9	35.0
	Up to < 1 pack/day	36.0	35.0	36.0	38.7	38.9	38.7				
	1 - 2 packs/day	36.5	35.5	36.5	39.2	39.4	39.2				
	> 2 packs/day	37.0	36.0	37.0	39.7	39.9	39.7				

Table 201 – A, pg. 2

		1st Trimester	2nd Trimester	3rd Trimester	Nonpreg 12 - < 15 yrs	Nonpreg 15 - < 18 yrs	Nonpreg ≥ 18 yrs	Infants 0 - < 6 mo	Infants 6 - < 12 mo	Child 1 - < 2 yrs	Child 2 - < 5 yrs
Altitude	Smoking	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <	Hct <
7000-7999 ft	Nonsmokers	36.0	35.0	36.0	38.7	38.9	38.7		36.0	35.9	36.0
	Up to < 1 pack/day	37.0	36.0	37.0	39.7	39.9	39.7				
	1 - 2 packs/day	37.5	36.5	37.5	40.2	40.4	40.2				
	> 2 packs/day	38.0	37.0	38.0	40.7	40.9	40.7				
8000- 8999 ft	Nonsmokers	37.0	36.0	37.0	39.7	39.9	39.7		37.0	36.9	37.0
	Up to < 1 pack/day	38.0	37.0	38.0	40.7	40.9	40.7				
	1 - 2 packs/day	38.5	37.5	38.5	41.2	41.4	41.2				
	> 2 packs/day	39.0	38.0	39.0	41.7	41.9	41.7				
9000- 8999 ft	Nonsmokers	38.0	37.0	38.0	40.7	40.9	40.7		38.0	37.9	38.0
	Up to < 1 pack/day	39.0	38.0	39.0	41.7	41.9	41.7				
	1 - 2 packs/day	39.5	38.5	39.5	42.2	42.4	42.2				
	> 2 packs/day	40.0	39.0	40.0	42.7	42.9	42.7				
10000 ft or more	Nonsmokers	39.0	38.0	39.0	41.7	41.9	41.7		39.0	38.9	39.0
	Up to < 1 pack/day	40.0	39.0	40.0	42.7	42.9	42.7				
	1 - 2 packs/day	40.5	39.5	40.5	43.2	43.4	43.2				
	> 2 packs/day	41.0	40.0	41.0	43.7	43.9	43.7				

Table 201 – B: Standards for Low Hemoglobin

		1st Trimester	2nd Trimester	3rd Trimester	Nonpreg 12 - < 15 yrs	Nonpreg 15 - < 18 yrs	Nonpreg ≥ 18 yrs	Infants 0 - < 6 mo	Infants 6 - < 12 mo	Child 1 - < 2 yrs	Child 2 - < 5 yrs
Altitude	Smoking	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <
No altitude adjustment	Nonsmokers	11.0	10.5	11.0	11.8	12.0	12.0		11.0	11.0	11.1
	Up to < 1 pack/day	11.3	10.8	11.3	12.1	12.3	12.3				
	1- 2 packs/day	11.5	11.0	11.5	12.3	12.5	12.5				
	> 2 packs/day	11.7	11.2	11.7	12.5	12.7	12.7				
3000- 3999 ft	Nonsmokers	11.2	10.7	11.2	12.0	12.2	12.2		11.2	11.2	11.3
	Up to < 1 pack/day	11.5	11.0	11.5	12.3	12.5	12.5				
	1- 2 packs/day	11.7	11.2	11.7	12.5	12.7	12.7				
	> 2 packs/day	11.9	11.4	11.9	12.7	12.9	12.9				
4000- 4999 ft	Nonsmokers	11.3	10.8	11.3	12.1	12.3	12.3		11.3	11.3	11.4
	Up to < 1 pack/day	11.6	11.1	11.6	12.4	12.6	12.6				
	1- 2 packs/day	11.8	11.3	11.8	12.6	12.8	12.8				
	> 2 packs/day	12.0	11.5	12.0	12.8	13.0	13.0				
5000-5999 ft	Nonsmokers	11.5	11.0	11.5	12.3	12.5	12.5		11.5	11.5	11.6
	Up to < 1 pack/day	11.8	11.3	11.8	12.6	12.8	12.8				
	1- 2 packs/day	12.0	11.5	12.0	12.8	13.0	13.0				
	> 2 packs/day	12.2	11.7	12.2	13.0	13.2	13.2				
6000-6999 ft	Nonsmokers	11.7	11.2	11.7	12.5	12.7	12.7		11.7	11.7	11.8
	Up to < 1 pack/day	12.0	11.5	12.0	12.8	13.0	13.0				
	1- 2 packs/day	12.2	11.7	12.2	13.0	13.2	13.2				
	> 2 packs/day	12.4	11.9	12.4	13.2	13.4	13.4				

Table 201 – B, pg. 2

		1st Trimester	2nd Trimester	3rd Trimester	Nonpreg 12 - < 15 yrs	Nonpreg 15 - < 18 yrs	Nonpreg ≥ 18 yrs	Infants 0 - < 6 mo	Infants 6 - < 12 mo	Child 1 - < 2 yrs	Child 2 - < 5 yrs
Altitude	Smoking	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <	Hgb <
7000-7999 ft	Nonsmokers	12.0	11.5	12.0	12.8	13.0	13.0		12.0	12.0	12.1
	Up to < 1 pack/day	12.3	11.8	12.3	13.1	13.3	13.3				
	1- 2 packs/day	12.5	12.0	12.5	13.3	13.5	13.5				
	> 2 packs/day	12.7	12.2	12.7	13.5	13.7	13.7				
8000- 8999 ft	Nonsmokers	12.3	11.8	12.3	13.1	13.3	13.3		12.3	12.3	12.4
	Up to < 1 pack/day	12.6	12.1	12.6	13.4	13.6	13.6				
	1- 2 packs/day	12.8	12.3	12.8	13.6	13.8	13.8				
	> 2 packs/day	13.0	12.5	13.0	13.8	14.0	14.0				
9000- 8999 ft	Nonsmokers	12.6	12.1	12.6	13.4	13.6	13.6		12.6	12.6	12.7
	Up to < 1 pack/day	12.9	12.4	12.9	13.7	13.9	13.9				
	1- 2 packs/day	13.1	12.6	13.1	13.9	14.1	14.1				
	> 2 packs/day	13.3	12.8	13.3	14.1	14.3	14.3				
10000 ft or more	Nonsmokers	13.0	12.5	13.0	13.8	14.0	14.0		13.0	13.0	13.1
	Up to < 1 pack/day	13.3	12.8	13.3	14.1	14.3	14.3				
	1- 2 packs/day	13.5	13.0	13.5	14.3	14.5	14.5				
	> 2 packs/day	13.7	13.2	13.7	14.5	14.7	14.7				

STANDARDS FOR SEVERE ANEMIA
(***Hematocrit*** low enough to necessitate a medical referral)

	3000-4999	5000-6999	7000-7999	8000-8999	9000-9999	>10,000
Pregnancy (any trimester)						
Non-Smoker	<31%	<32%	<33%	<34%	<35%	<36%
Smoker						
½ - 1 pk/day	<32%	<33%	<34%	<35%	<36%	<37%
1 - 2 pk/day	<32%	<33%	<35%	<36%	<37%	<38%
≥2 pk/day	<34%	<34%	<35%	<36%	<37%	<38%
Non-Pregnant						
Non-Smoker	<32%	<33%	<34%	<35%	<36%	<37%
Smoker						
½ - 1 pk/day	<33%	<34%	<35%	<36%	<37%	<38%
1 - 2 pk/day	<33%	<34%	<36%	<37%	<38%	<39%
≥2 pk/day	<34%	<34%	<35%	<36%	<37%	<39%
6 – 23 months	<29%	<30%	<31%	<32%	<33%	<34%
2 – 5 years	<29%	<30%	<31%	<32%	<33%	<34%

STANDARDS FOR SEVERE ANEMIA
(***Hemoglobin*** low enough to necessitate a medical referral)

	3000-4999	5000-6999	7000-7999	8000-8999	9000-9999	>10,000
Pregnancy (any trimester)						
Non-Smoker	<10.0	<10.3	<10.8	<11.1	<11.4	<11.8
Smoker						
½ - 1 pk/day	<10.3	<10.6	<11.1	<11.4	<11.7	<12.1
1 - 2 pk/day	<10.5	<10.8	<11.3	<11.6	<11.9	<12.3
≥2 pk/day	<10.7	<11.0	<11.5	<11.8	<12.1	<12.5
Non-Pregnant						
Non-Smoker	<10.3	<10.6	<11.1	<11.4	<11.7	<12.1
Smoker						
½ - 1 pk/day	<10.8	<11.1	<11.6	<11.9	<12.2	<12.6
1 - 2 pk/day	<11.0	<11.3	<11.8	<12.1	<12.4	<12.8
≥2 pk/day	<11.2	<11.5	<12.0	<12.3	<12.6	<13.0
6 – 23 months	<9.5	<9.8	<10.3	<10.6	<11.0	<11.3
2 – 5 years	<9.6	<9.9	<10.4	<10.7	<11.0	<11.4

08/2016

211 Elevated Blood Lead Levels

Definition/Cut-off Value

Blood lead level of > 10 µg/deciliter within the past 12 months.*

*Cut-off value is the current published guidance from the Centers for Disease Control and Prevention.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V, or VI
Infants	I
Children	III

Justification

Venous blood measurement levels at or above the level identified in CDC published guidelines are associated with harmful effects on health, nutritional status, learning or behavior for everyone. Because published guidelines are currently available only for children, similar thresholds should be used for other participant categories until category-specific guidelines are available from CDC.

Lead poisoning is a persistent, but entirely preventable public health problem in the United States. It is most common in children, but can occur in other groups as well. Blood lead levels have been declining in the U.S. population as a whole in recent years, but children remain at risk. Children absorb lead more readily than adults and children's developing nervous systems are particularly vulnerable to lead's effects.

In pregnant women lead crosses the placenta and can have a detrimental impact on a developing fetus. Adequate intake of calories, calcium, magnesium, iron, zinc, and various vitamins (e.g. thiamin, ascorbic acid, and vitamin E) decreases the absorption of lead in adults and the susceptibility of children to the toxic effects of lead.

Individuals exposed to lead who participate in WIC may benefit from referrals to lead treatment programs, guidance on how to reduce exposure to lead, supplemental food, and the importance of diet in minimizing absorption.

Measurement, of blood lead levels, replaces the Erythrocyte Protoporphyrin (EP) test as the recommended screening tool because EP is not sensitive enough at blood lead levels below 25 µg/dl. Venous blood samples are preferable, but capillary samples may be more feasible at some sites. Elevated blood lead levels obtained using capillary samples should be confirmed using venous blood. If EP is used, elevated results should be followed by a blood lead test using a venous blood sample.

Iron deficiency can also cause elevated EP concentrations. Iron deficiency and lead poisoning often coexist. Although follow-up screening within less than 12 months is recommended for children with an elevated blood lead level (BLL), CDC recommends blood lead screening for potentially at-risk children at 1 and 2 years of age and between 36 and 72 months of age. The WIC Program can refer children to a health care provider if they had elevated BLL 12 months ago and no interim follow-up BLL screening.

References

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2. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.; 1996.
3. National Center for Environmental Health. Screening young children for lead poisoning guidance for state and local public health officials. Atlanta, Ga.: Centers for Disease Control and Prevention, National Center for Environmental Health, U.S. Dept. of Health and Human Services, Public Health Service, 1997.

301 Hyperemesis Gravidarum

Definition/Cut-off Value

Hyperemesis Gravidarum is defined as severe nausea and vomiting to the extent that the pregnant woman becomes dehydrated and acidotic.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I

Justification

Nausea and vomiting are common early in gestation; 50% or more of normal pregnant women experience some vomiting. However, pregnant women with severe vomiting during pregnancy are at risk of weight loss, dehydration, and metabolic imbalances. Nutrition risk is based on chronic conditions, not single episodes.

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.; 1996.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

302 Gestational Diabetes

Definition/Cut-off Value

Gestational diabetes mellitus (GDM) is defined as any degree of glucose/carbohydrate intolerance with onset or first recognition during pregnancy (1, 2).

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I

Justification

The definition of GDM applies regardless of whether insulin or only diet modification is used for treatment, or whether the condition persists after pregnancy. Included in this classification are women who may have had undiagnosed diabetes prior to pregnancy but who are first diagnosed during pregnancy (1, 2). Pregnant women requiring the use of exogenous steroids, tocolytics, or other medications, or who have medical conditions that alter glucose tolerance, may develop GDM (2). GDM represents nearly 90% of all pregnancies complicated by diabetes (1). The criteria for the diagnosis of GDM (3) are shown in Table 1 (see Clarification).

Pregnancy is an insulin-resistant and diabetogenic state (2). Deterioration of glucose tolerance occurs normally during pregnancy, particularly in the 3rd trimester (1, 2). Untreated or poorly treated GDM results in a higher risk of morbidity and mortality for both the mother and the fetus (2).

Established risk factors for GDM are advanced maternal age, obesity, and family history of diabetes (4). Risk assessment for GDM should be undertaken at the first prenatal visit. Women with clinical characteristics consistent with a high risk for GDM (e.g., those with marked obesity, personal history of GDM or delivery of a previous large-for-gestation-age infant, glycosuria, polycystic ovary syndrome, or a strong family history of diabetes) should undergo glucose testing as soon as possible (5). Unquestionably, there are also ethnic differences in the prevalence of GDM. In the U.S., Native Americans, Asians, Hispanics, and African American women are at a higher risk for GDM than non-Hispanic White women. Besides obesity, there is a suggestion that physical inactivity, diets high in saturated fat and smoking are associated with increasing risk for GDM or recurrent GDM (4).

Infants of women with GDM are at an increased risk of developing obesity, impaired glucose tolerance or diabetes as children or young adults (4). GDM is associated with a higher incidence of maternal and fetal complications. Maternal complications include polycythemia, respiratory distress syndrome, and increased rate of stillbirth (6). Although rarely seen in GDM, congenital anomalies, neural tube defects, cardiac abnormalities and/or caudal regression may occur if a woman has GDM in the early first trimester (6, 7).

Since GDM is a risk factor for subsequent type 2 diabetes after delivery, lifestyle modifications aimed at reducing weight and increasing physical activity are recommended (8). The National Diabetes Education Program (NDEP) is currently promoting a GDM Prevention Initiative, targeting both providers and women with a GDM history (9). Key messages are illustrated in Table 2 (see Clarification).

Medical Nutrition Therapy (MNT) is the primary treatment for the management of GDM (7). MNT for GDM primarily involves a carbohydrate-controlled meal plan that promotes optimal nutrition for maternal and fetal health with adequate energy for appropriate gestational weight gain, achievement and maintenance of normoglycemia, and absence of ketosis (7, 8). Breastfeeding should be strongly encouraged as it is associated with maternal weight loss and reduced insulin resistance for both mother and offspring (10). WIC nutrition services can reinforce and support the medical and diet therapies (such as MNT) that participants with GDM receive from their health care providers.

References

1. American Diabetes Association: Diagnosis and classification of diabetes mellitus. Diabetes Care. Jan 2008; 31 Suppl 1:S55-60.
2. Franz MJ, Biastre SA, Slocum J. Diabetes in the life cycle and research. In: Gestational Diabetes – A core curriculum for diabetes education, American Association of Diabetes Educators. 5th Ed. 2003.
3. American Diabetes Association. Gestational diabetes mellitus (position statement). Diabetes Care. 2003; 26 Suppl. 1:S103-105.
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6. Thomas AM, Gutierrez YM. American Dietetic Association guide to gestational diabetes mellitus in postpartum considerations. Eds. American Dietetic Association; 2005:101-113.
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9. Ratner, RE. Prevention of type 2 diabetes in women with previous gestational diabetes. Proceedings of the fifth international workshop – conference on gestational diabetes mellitus. Diabetes Care. Jul 2007; 30 Suppl. 2:S242-245.
10. Evert AG, Vande Hei K. Gestational diabetes education and diabetes prevention strategies. Diabetes Spectrum. 2006; 19(3):135-139.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Women at high risk for GDM who have tested negative at the initial screening, and women at average risk for GDM should be tested by a licensed medical provider, between 24 and 28 weeks of gestation. Women of average risk should be tested at 24-28 weeks of gestation. Testing should follow one of two approaches:

One-step approach: perform a diagnostic 100-g OGTT (Oral Glucose Tolerance Test).

Two-step approach:

A screening test (glucose challenge test) that measures plasma or serum glucose is done 1 hour after a 50-g oral glucose load without regard for time of day or time of last meal. If a plasma or serum glucose level meets or exceeds the threshold (≥ 130 mg/dl [7.2 mmol/L] or

≥ 140 mg/dl [7.8 mmol/L], respectively), an OGTT is performed (3).

A diagnosis of GDM is made with a 100-g oral glucose load after an overnight fast. Using a 3- hour test, if two or more plasma or serum glucose levels meet or exceed the threshold, a diagnosis of GDM is made. Alternatively, the diagnosis can be made using a 75-g oral glucose load. The glucose threshold values for both tests are listed in Table 1 (10). The 75-g glucose load test is not as well validated as the 100-g OGTT.

With either the 75-g OGTT or the 100-g OGTT, it is recommended that the test be performed after an overnight fast of at least 8 hours but no longer than 14 hours. For 3 days prior to the test the woman should consume an unrestricted diet (≥ 150 g carbohydrate per day) and maintain unrestricted physical activity. Women need to remain seated and not smoke during the test. (1, 2).

Table 1. Diagnosis of Gestational Diabetes Mellitus with a 100-g or 75-g Oral Glucose Load

Time (h)	100-g Oral Glucose Load	75-g Oral Glucose Load
Fasting	95 mg/dL (5.3 mmol/L)	95 mg/dL (5.3 mmol/L)
1	180 mg/dL (10.0 mmol/L)	180 mg/dL (10.0 mmol/L)
2	155 mg/dL (8.6 mmol/L)	155 mg/dL (8.6 mmol/L)
3	140 mg/dL (7.8 mmol/L)	
Two or more of the venous plasma concentrations must be met or exceeded for a positive diagnosis. Source: American Diabetes Association (3).		

Table 2. Gestational Diabetes Mellitus (GDM) Prevention Initiative from the National Diabetes Education Program

- GDM imparts lifelong risk for diabetes, mostly type 2.
- Modest weight loss and physical activity can delay or prevent type 2 diabetes.
- Offspring can lower risk of diabetes by eating healthy foods, being active, and not becoming overweight.

Conservative recommendations to patients include:

- Let health care practitioners know of any history of GDM.
- Get glucose testing at 6 to 12 weeks postpartum, then every 1-2 years.
- Reach pre-pregnancy weight 6 to 12 months postpartum.
- If still overweight, lose at least 5 to 7% of weight slowly, over time, and keep it off.

Adapted from the National Diabetes Education Program (9).

303 History of Gestational Diabetes

Definition/Cut-off Value

History of diagnosed gestational diabetes mellitus (GDM)

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Women who have had a pregnancy complicated by GDM are 40-60% more likely to develop diabetes within 15-20 years (1), usually type 2 (2). This risk of subsequent diabetes is greatest in women with GDM who are diagnosed early in the pregnancy, exhibit the highest rates of hyperglycemia during the pregnancy, and are obese.

Approximately 30-50% of the women with a history of GDM will develop GDM in a subsequent pregnancy. Studies have found that the risk factors for subsequent GDM include insulin use in the index pregnancy, obesity, diet composition*, physical inactivity, failure to maintain a healthy BMI and weight gain between pregnancies (2, 3). In addition, if a woman's lipid levels are elevated, a history of GDM is also a risk factor for cardiovascular disorders (3).

There is evidence to suggest that some women with a history of GDM show relative beta-cell dysfunction during and after pregnancy (3). Most women with a history of GDM are insulin resistant. Changes in lifestyle (dietary and physical activity) may improve postpartum insulin sensitivity and could possibly preserve B-cell function to slow the progression to type 2 diabetes (2, 3).

During WIC nutrition education and counseling, obese women with a history of GDM should be encouraged to lose weight before a subsequent pregnancy. Breastfeeding has been shown to lower the blood glucose level and to decrease the incidence of type 2 diabetes in women with a history of GDM (2, 3). Exercise also has a beneficial effect on insulin action by enhancing peripheral tissue glucose uptake (3). Medical Nutrition Therapy (MNT) is an essential component in the care of women with a history of GDM.

Women with a history of GDM but without immediate subsequent postpartum diagnosis of diabetes should be advised to discuss with their medical provider the importance of having a Glucose Tolerance Testing (GTT) at 6 to 12 weeks postpartum (see Clarification, Table 1); to have a pre-pregnancy consultation before the next pregnancy, and to request early glucose screening in the next pregnancy (4). The National Diabetes Education Program (NDEP) is currently promoting a GDM Diabetes Prevention Initiative, targeting both providers and women with a history of GDM (5). Key messages are illustrated in Table 2 (see Clarification).

WIC nutrition services can support and reinforce the MNT and physical activity recommendations that participants receive from the health care providers. In addition, WIC nutritionists can play an important role in providing women with counseling to help manage their weight after delivery. Also, children of women with a history of GDM should be encouraged to establish and maintain healthy dietary and lifestyle behaviors to avoid excess weight gain and reduce their risk for type 2 diabetes (1).

**Diet Composition*

Carbohydrate is the main nutrient that affects postprandial glucose elevations. During pregnancy complicated with GDM, carbohydrate intake can be manipulated by controlling the total amount of carbohydrate, the distribution of carbohydrate over several meals and snacks, and the type of carbohydrate. These modifications need not affect the total caloric intake level/prescription (6).

Because there is wide inter-individual variability in the glycemic index each woman needs to determine, with the guidance of the dietitian, which foods to avoid or use in smaller portions at all meals or during specific times of the day, for the duration of her pregnancy. Practice guidelines have avoided labeling foods as "good" or "bad" (6).

Meal plans should be culturally appropriate and individualized to take into account the patient's body habitus, weight gain and physical activity; and should be modified as needed throughout pregnancy to achieve treatment goals (6).

References

1. Evert AG, Vande Hei K. Gestational diabetes education and diabetes prevention strategies. Diabetes Spectrum. 2006; 19 (3):135-139.
2. Franz MJ, Biastre SA, Slocum J. Diabetes in the life cycle and research. In: Gestational diabetes - A core curriculum for diabetes education, American Association of Diabetes Educators. 5th ed. 2003; 145-163.
3. Thomas AM, Gutierrez YM. American Dietetic Association guide to gestational diabetes mellitus in postpartum considerations. Eds. American Dietetic Association. 2005; 101-113.
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5. Ratner RE. Prevention of type 2 diabetes in women with previous gestational diabetes. Proceedings of the fifth international workshop — conference on Gestational Diabetes Mellitus. Diabetes Care. Jul 2007; 30 Suppl. 2:S242-245.
6. Reader DM. Medical nutrition therapy and lifestyle interventions. Proceedings of the fifth international workshop — conference on Gestational Diabetes Mellitus. Diabetes Care. Jul 2007; 30 Suppl. 2:S188-193.

Clarification

Self-reporting of "History of …" conditions should be treated in the same manner as self-reporting of current conditions requiring a physician's diagnosis, i.e., the applicant may report to the CPA that s/he was diagnosed by a physician with a given condition at some point in the past. As with current conditions, self- diagnosis of a past condition should never be confused with self-reporting.

Table 1. Reasons for Delayed Postpartum Glucose Testing of Women with Prior Gestational Diabetes Mellitus (GDM)

1. The substantial prevalence of glucose abnormalities detected by 3 months postpartum.
2. Abnormal test results identify women at high risk of developing diabetes over the next 5 to 10 years.
3. Ample clinical trial evidence in women with glucose intolerance that type 2 diabetes can be delayed or prevented by lifestyle interventions or modest and perhaps intermittent drug therapy.
4. Women with prior GDM and impaired glucose tolerance (IGT) have cardiovascular disease (CVD) risk factors. Interventions may reduce subsequent CVD, which is the leading cause of death in both types of diabetes.
5. Identification, treatment, and planning of pregnancy in women developing diabetes after GDM should reduce subsequent early fetal loss and major congenital malformations.

Kitzmiller JL, Dang-Kilduff L, Taslimi MM

Table 2. Gestational Diabetes Mellitus (GDM) Prevention Initiative from the National Diabetes Education Program

- GDM imparts lifelong risk for diabetes, mostly type 2.
- Modest weight loss and physical activity can delay or prevent type 2 diabetes.
- Offspring can lower risk by eating healthy foods, being active, and not becoming overweight. Conservative recommendations to patients include:
- Let health care practitioners know of any history of GDM.

Conservative recommendations to patients include:

- Get glucose testing at 6 to 12 weeks postpartum, then every 1-2 years.
- Reach prepregnancy weight 6 to 12 months postpartum.
- If still overweight, lose at least 5 to 7% of weight slowly, over time, and keep it off.

Adapted from the National Diabetes Education Program.

304 History of Preeclampsia

Definition/Cut-off Value

History of diagnosed preeclampsia.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Preeclampsia is defined as pregnancy-induced hypertension (> 140mm Hg systolic or 90mm Hg diastolic) with proteinuria developing usually after the twentieth week of gestation (1, 2). Clinical symptoms of preeclampsia may include: edema, renal failure, and the HELLP (Hemolysis, Elevated Liver enzymes and Low Platelets) syndrome.

Preeclampsia is a leading cause of maternal death and a major contributor to maternal and perinatal morbidity (3). Women who have had preeclampsia in a prior pregnancy have an increased risk of recurrence (about 20% overall) (4). The risk is greater in women who have had preeclampsia occurring early in pregnancy or who have had preeclampsia in more than one pregnancy. Additionally, maternal pre- pregnancy obesity with BMI > 30 is the most prevalent risk factor for preeclampsia (4).

Risk factors for preeclampsia include (2, 4, 5):

- Pre-pregnancy obesity BMI ≥ 30
- Preeclampsia in a prior pregnancy
- Nulliparity (no prior delivery)
- Maternal age > 35 years
- Endocrine disorders (e.g., diabetes); autoimmune disorders (e.g., lupus); renal disorders
- Multi-fetal gestation
- Genetics
- Black race

There are few established nutrient recommendations for the prevention of preeclampsia. However, vitamin D may be important because it influences vascular structure and function, and regulates blood pressure (4). Also, calcium may prevent preeclampsia among women with very low baseline calcium intake (4).
There is no treatment for preeclampsia. The condition resolves itself only when the pregnancy terminates or a placenta is delivered (4). Early prenatal care, therefore, is vital to the prevention of the onset of the disease.

WIC is well poised to provide crucial strategies during the critical inter-conceptual period to help reduce the risk of recurrence of preeclampsia in a subsequent pregnancy.

WIC nutrition education encourages practices shown by research to have a protective effect against developing preeclampsia (2, 4, 5). These include:

- Gaining recommended weight based on pre-pregnancy BMI, in order to help return to a healthy post-partum weight
- Scheduling early prenatal care visits
- Consuming a diet adequate in calcium and vitamin D
- Taking prenatal vitamins
- Engaging in regular physical activity
- Discontinuing smoking and alcohol consumption

Post-Partum Women

Women who have had preeclampsia should be advised that they are at risk for recurrence of the disease and development of cardiovascular disease (CVD) later in life (4, 7). WIC nutrition education can emphasize measures that support the prevention of preeclampsia in a future pregnancy such as reaching or maintaining a healthy BMI and lifestyle between pregnancies, consuming a nutritionally adequate diet consistent with the Dietary Guidelines for Americans, and engaging in regular physical activity.

Pregnant Women

The WIC Program provides supplemental foods rich in nutrients, especially calcium and Vitamin D, which research has shown to have a protective effect on preeclampsia (4). During nutrition education, WIC can encourage actions or behaviors that also have been shown to have a protective effect against preeclampsia: early prenatal care, taking a prenatal vitamin, and engaging in physical activity (6). WIC can also discourage smoking and alcohol consumption (2) and counsel pregnant women to gain recommended weight based on pre-pregnancy BMI (8) and to return to pre-pregnancy weight or a healthy BMI of < 25 for the benefit of future pregnancies.

References

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Clarification

Self-reporting of "History of …" conditions should be treated in the same manner as self-reporting of current conditions requiring a physician's diagnosis, i.e., the applicant may report to the CPA that s/he was diagnosed by a physician with a given condition at some point in the past. As with current conditions, self- diagnosis of a past condition should never be confused with self-reporting.

311 History of Preterm Delivery

Definition/Cut-off Value

History of preterm delivery is defined as the birth of an infant at ≤ 37 weeks gestation for the following:

Category	Pregnancy
Pregnant Women	Any history of preterm delivery
Breastfeeding/Non-Breastfeeding	Most recent pregnancy

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Preterm birth causes at least 75% of neonatal deaths not due to congenital malformations (1). In most cases of preterm labor, the cause is unknown. Epidemiologic studies have consistently reported low socioeconomic status, nonwhite race, maternal age of ≤ 18 years or ≥ 40 years, and low prepregnancy underweight as risk factors. A history of one previous preterm birth is associated with a recurrent risk of 17-37% (2, 3); the risk increases with the number of prior preterm births and decreases with the number of term deliveries.

References

1. American College of Obstetricians and Gynecologists. Preterm Labor. Technical Bulletin 206. Washington, DC: ACOG, 1995.
2. Hoffman HJ, Bakketeig LS. Risk factors associated with the occurrence of preterm birth. Clin. Obstet. Gynecol. 1984; 27:539-52.
3. Keiirse MJNC, Rush RW, Anderson AB, Turnbull AC. Risk of preterm delivery in patients with a previous preterm delivery and/or abortion. Br. J. Obstet. Gynecol. 1978; 85:81-85.

12/2013

312 History of Low Birth Weight

Definition/Cut-off Value

History of low birth weight is defined as the birth of an infant weighing ≤ 5 lb. 8 oz. (≤ 2500 grams) for the following:

Category	Pregnancy
Pregnant Women	Any history of low birth weight
Breastfeeding/Non-Breastfeeding	Most recent pregnancy

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

A woman's history of a delivery of a low birth weight (LBW) baby is the most reliable predictor for LBW in her subsequent pregnancy (1). The risk for LBW is 2-5 times higher than average among women who have had previous LBW deliveries and increases with the number of previous LBW deliveries (1). This is true for histories in which the LBW was due to premature birth, fetal growth restriction (FGR) or a combination of these factors. The extent to which nutritional interventions (dietary supplementation and counsel) can decrease risk for repeat LBW depends upon the relative degree to which poor nutrition was implicated in each woman's previous poor pregnancy outcome. Nutritional deficiencies and excesses have been shown to result in LBW and pregnancy loss. The pregnant woman's weight gain is one of the most important correlates of birth weight and of FGR (2, 3).

References

1. Institute of Medicine, Committee to Study the Prevention of Low Birth Weight. Preventing low birth weight. National Academy Press, Washington, D.C.; 1985.
2. Institute of Medicine. Nutrition during pregnancy. National Academy Press, Washington, D.C.; 1990.
3. Kramer MS. Intrauterine growth and gestational duration determinants. Pediatrics 1987; 80:502- 11.

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321 History of Spontaneous Abortion, Fetal or Neonatal Loss

Definition/Cut-off Value

History of spontaneous abortion, fetal or neonatal loss are defined as follows:

Category	Definition
321A - Pregnant Women	Any history of fetal or neonatal death or 2 or more spontaneous abortions.
321B - Breastfeeding Women	Most recent pregnancy in which there was a multifetal gestation with one or more fetal or neonatal deaths but with one or more infants still living.
321C - Non-Breastfeeding Women	Spontaneous abortion, fetal or neonatal loss in most recent pregnancy.

Spontaneous abortion, fetal and neonatal death are defined as follows:

Term	Definition
Spontaneous Abortion (SAB)	The spontaneous termination of a gestation at < 20 weeks or of a fetus weighing < 500 grams.
Fetal Death	The spontaneous termination of a gestation at ≥ 20 weeks.
Neonatal Death	The death of an infant within 0-28 days of life.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Pregnancy

Previous fetal and neonatal deaths are strongly associated with preterm low birth weight (LBW) and small for gestational age (SGA) and the risk increases as the number of previous poor fetal outcomes goes up.

Spinnillo et al found that the risk for future small for gestational age outcomes increased two fold if a woman had 2 or more SAB. Adverse outcomes related to history of SAB include recurrent SAB, low birth weight (including preterm and small for gestational age infants), premature rupture of membranes, neural tube defects and major congenital malformations. Nutrients implicated in human and animal studies include energy, protein, folate, zinc, and vitamin A.

Postpartum women

A SAB has been implicated as an indicator of a possible neural tube defect in a subsequent pregnancy. Women who have just had a SAB or a fetal or neonatal death should be counseled to increase their folic acid intake and delay a subsequent pregnancy until nutrient stores can be replenished.

The extent to which nutritional interventions (dietary supplementation and counseling) can decrease the risk for repeat poor pregnancy outcomes depends upon the relative degree to which poor nutrition was implicated in each woman's previous poor pregnancy outcome. WIC Program clients receive foods and services that are relevant and related to ameliorating adverse pregnancy outcomes. Specifically, WIC food packages include good sources of implicated nutrients. Research confirms that dietary intake of nutrients provided by WIC foods improve indicators of nutrient status and/or fetal survival in humans and/or animals.

References

1. American College of Obstetricians and Gynecologists. Preterm Labor. Technical Bulletin 206. Washington, DC: ACOG, 1995.
2. Carmi R, Gohar J, Meizner I, Katz M. Spontaneous abortion--high risk factor for neural tube defects in subsequent pregnancy [see comments]. Am. J. Med. Genet. 1994; 51:93-7.
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4. Institute of Medicine. Nutrition during pregnancy. National Academy Press, Washington, D.C.; 1990.
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9. Thorn DH. Spontaneous abortion and subsequent adverse birth outcomes. Am. J. Obstet. Gyn. 1992; 111-6.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validated the presence of the condition by asking more pointed questions related to that diagnosis.

Note: A woman who becomes pregnant within 16 months after a SAB (her first) would qualify for risk #332, Closely Spaced Pregnancies.

331 Pregnancy at a Young Age

Definition/Cut-off Value

Pregnancy at a young age is defined as conception at:

331A: < 16 years of age

331B: 16 to <18 years of age

Note: Compass uses age as of date of LMP to assign risk.

Category	Pregnancy
Pregnant Women	Current pregnancy
Breastfeeding/Non-Breastfeeding	Most recent pregnancy

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Pregnancy before growth is complete is a nutritional risk because of the potential for competition for nutrients for the pregnancy needs and the woman's growth.

The pregnant teenager is confronted with many special stresses that are superimposed on the nutritional needs associated with continued growth and maturation.

Younger pregnant women of low socioeconomic status tend to consume less than recommended amounts of protein, iron, and calcium, and are more likely to come into pregnancy already underweight. Pregnant teens who participate in WIC have been shown to have an associated increase in mean birth weight and a decrease in LBW outcomes.

Adolescent mothers frequently come into pregnancy underweight, have extra growth related nutritional needs, and because they often have concerns about weight and body image, are in need of realistic, health promoting nutrition advice and support during lactation. Diets of adolescents with low family incomes typically contain less iron, and less vitamin A than are recommended during lactation.

The adolescent mother is also confronted with many special stresses superimposed on the normal nutritional needs associated with continued growth. Nutrition status and risk during the postpartum period follow from the nutritional stresses of the past pregnancy, and in turn have an impact on nutrition related risks in subsequent pregnancies.

Poor weight gain and low intakes of a variety of nutrients are more common in pregnant adolescents. Therefore, participation in the WIC Program should be of substantial benefit.

References

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2. Institute of Medicine. Nutrition during pregnancy. National Academy Press, Washington, D.C.; 1990.
3. Kennedy ET, Kotelchuck M. The effect of WIC supplemental feeding on birth weight: a case-control analysis. Am. J. Clin. Nutr. 1984; 40:579-85.
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332 Closely Spaced Pregnancies

Definition/Cut-off Value

Closely spaced pregnancies are defined as conception before 16 months postpartum for the following:

Category	Pregnancy
Pregnant Women	Current pregnancy
Breastfeeding/Non-Breastfeeding	Most recent pregnancy

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Pregnancy stimulates an adjustment of the mother to a new physiological state which results in rapid depletion of maternal stores of certain nutrients. Mothers with closely spaced pregnancies do not have sufficient time to replenish the nutritional deprivations of the previous pregnancy. Breastfeeding places further nutritional demands on the mother and may increase risks to the pregnancy. After birth, readjustments take place. It is undesirable for another pregnancy to occur before the readjustment is complete since a short interconceptional time period may leave the woman in a compromised nutritional state and at risk for a poor pregnancy outcome. Among low income, inner-city, multiparous women, inter- pregnancy intervals of less than 12 months have been associated with lower folate levels in the postpartum period.

There is a sharply elevated relative risk for low birth weight (LBW) when the interconception interval is less than 6 months. An increased risk persists for inter-pregnancy intervals of up to 18 months and holds when adjusted for potential confounders. The increased risk is for small gestational age term births rather than for LBW due to prematurity.

In one study, postpartum women who received WIC supplements for 5-7 months, delivered higher mean birth weights and lengths and had a lower risk of low birth weight than women who received supplements for two months or less. Women who were supplemented longer had higher mean hemoglobin values and a lower risk of maternal obesity at the subsequent pregnancy.

Recognizing the potential problems associated with closely spaced pregnancies, WIC Program Regulations specifically include this condition.

References

1. Caan B, Horgen DM, Margen S, King JC, Jewell NP. Benefits associated with WIC supplemental feeding during the interpregnancy interval. Am. J. Clin. Nutr. 1987; 45:29-41.
2. Institute of Medicine, Committee to Study the Prevention of Low Birth Weight. Preventing low birth weight. National Academy Press, Washington, D.C.; 1985.
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5. Schall JL, et al. Maternal micronutrient and short interpregnancy interval. In: Society for Epidemiologic Research Annual Meeting 1991 Abstracts; Buffalo, New York; 1991;134;7:770.
6. WIC Program Regulations, Sect. 246.7 (e)(2)(ii).
7. Worthington-Roberts BS, Williams SR. Nutrition During Pregnancy and Lactation. St. Louis: Mosby, 1989.

333 High Parity and Young Age

Definition/Cut-off Value

Women under age 20 at date of conception who have had 3 or more previous pregnancies of at least 20 weeks duration, regardless of birth outcome for the following:

Category	Pregnancy
Pregnant Women	Current pregnancy
Non-Breastfeeding Women	Most recent pregnancy

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

The IOM Report (p. 204) states, "empirical evidence on the interactions of high parity with both age and short interpregnancy interval does suggest significant [nutritional] risks associated with high parity at young ages and high parity with short interpregnancy intervals (1)."

Since factors such as adolescent pregnancy (< 18 years of age) and short interpregnancy interval are used independently as risk criteria, women with such risks would be eligible for participation in WIC. Studies by Kramer (1987) and MacLeod & Kiely (1988) (pg. 202) show that "multiparity increases the risk of low birth weight (LBW) for women under age 20." Kramer further reports "multiparity has little effect for women age 20-34 years and decreases for women over age 35." These studies demonstrate the risk of delivering LBW babies for women under the age of 20 years. Thus, low birth weight increases the likelihood of physical and mental developmental deficiencies among surviving infants, and even a higher incidence of infant death.

References

1. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.; 1996.
2. Kramer MS. Determinants of low birth weight: Methodological assessment and meta-analysis. Bull. World Health Organ 1987; 65:663-737.
3. MacLeod S, Kiely JL. The effects of maternal age and parity on birthweight: a population- based study in New York City. Int. J. Gynaecol. Obstet. 1988; 26:11-9.
4. Taffel SM. Trends in low birth weight: United States, 1975-85. Vital Health Stat.21 1989; 1-30.

334 Lack of or Inadequate Prenatal Care

Definition/Cut-off Value

Prenatal care beginning after the 1st trimester (after 13th week), or based on an Inadequate Prenatal Care Index published in a peer reviewed article such as the one by Kessner et al. (4).

First prenatal visit in the third trimester (7-9 months) or:

Weeks Gestation	Number of Prenatal Visits (2)
14 - 21	0 or unknown
22 - 29	1 or less
30 - 31	2 or less
32 - 33	3 or less
34 or more	4 or less

Participant Category and Priority Level

Category	Priority
Pregnant Women	I

Justification

Women who do not receive early and adequate prenatal care are more likely to deliver premature, growth retarded, or low birth weight infants (3). The Kessner Index can be used to assess the adequacy of prenatal care for a woman with an uncomplicated pregnancy. Women with medical or obstetric problems, as well as younger adolescents, may need closer management; the frequency of prenatal visits should be determined by the severity of identified problems (1). Several studies have reported significant health and nutrition benefits for pregnant women enrolled in the WIC Program (3).

References

1. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Guidelines for Perinatal Care. Washington, D.C.: AAP, ACOG; 1997.
2. Centers for Disease Control and Prevention. Prenatal Nutrition Surveillance System User's Manual. Atlanta: CDC, 1994.
3. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. National Academy Press, Washington, D.C.; 1996.

4. Kessner DM, Singer J, Kalk CE, Schlesinger ER. Infant Death: An analysis by maternal risk and health care. Contrasts in Health Status; Vol. I. Washington, DC: Institute of Medicine, National Academy of Sciences; 1973.

Clarification

The Centers for Disease Control and Prevention (CDC) defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:

- First Trimester: 0-13 weeks
- Second Trimester: 14-26 weeks
- Third Trimester: 27-40 weeks

Further, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.

335 Multi-fetal Gestation

Definition/Cut-off Value

More than one (> 1) fetus in a current pregnancy (Pregnant Women) or the most recent pregnancy (Breastfeeding and Non-Breastfeeding Women).

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Multi-fetal gestations are associated with low birth weight, fetal growth restriction, placental and cord abnormalities, preeclampsia, anemia, shorter gestation and an increased risk of infant mortality. Twin births account for 16% of all low birth weight infants. The risk of pregnancy complications is greater in women carrying twins and increases markedly as the number of fetuses increases (1, 2).

For twin gestations, the 2009 IOM recommendations provide provisional guidelines: normal weight women should gain 37-54 pounds; overweight women, 31-50 pounds; and obese women, 25-42 pounds (3). There was insufficient information for the IOM committee to develop even provisional guidelines for underweight women with multiple fetuses. A consistent rate of weight gain is advisable. A gain of 1.5 pounds per week during the second and third trimesters has been associated with a reduced risk of preterm and low-birth weight delivery in twin pregnancy (2). In triplet pregnancies the overall gain should be around 50 pounds with a steady rate of gain of approximately 1.5 pounds per week throughout the pregnancy (2). Education by the WIC nutritionist should address a steady rate of weight gain that is higher than for singleton pregnancies.

Pregnant or breastfeeding women with twins have greater requirements for all nutrients than women with only one infant. Postpartum, non-breastfeeding women delivering twins are at greater nutritional risk than similar women delivering only one infant. All three groups of women would benefit greatly from the nutritional supplementation provided by the WIC Program.

References

1. Brown JE and Carlson M. Nutrition and multifetal pregnancy. J Am Diet Assoc. 2000; 100:343-348.
2. Institute of Medicine. WIC nutrition risk criteria: a scientific assessment. National Academy Press, Washington, D.C.; 1996.
3. Institute of Medicine. Weight gain during pregnancy: reexamining the guidelines (Prepublication Copy). National Academy Press, Washington, D.C.; 2009. www.nap.edu. Accessed June 2009.

Additional References

1. Brown JE, Schloesser PT. Pregnancy weight status, prenatal weight gain, and the outcome of term twin gestation. Am. J. Obstet. Gynecol. 1990; 162:182-6.
2. Suitor CW, editor. Maternal weight gain: a report of an expert work group. Arlington, Virginia: National Center for Education in Maternal and Child Health; 1997. Sponsored by Maternal and Child Health Bureau, Health Resources and Services Administration, Public Health Service, U.S. Department of Health and Human Services.
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4. Worthington-Roberts, BS. Weight gain patterns in twin pregnancies with desirable outcomes. Clin.Nutr. 1988; 7:191-6.

336 Fetal Growth Restriction

Definition/Cut-off Value

Fetal Growth Restriction (FGR) (replaces the term Intrauterine Growth Retardation (IUGR)), may be diagnosed by a physician with serial measurements of fundal height, abdominal girth and can be confirmed with ultrasonography. FGR is usually defined as a fetal weight $< 10^{th}$ percentile for gestational age.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I

Justification

Fetal Growth Restriction (FGR) usually leads to low birth weight (LBW) which is the strongest possible indicator of perinatal mortality risk. Severely growth restricted infants are at increased risk of fetal and neonatal death, hypoglycemia, polycythemia, cerebral palsy, anemia, bone disease, birth asphyxia, and long term neurocognitive complications. FGR may also lead to increased risk of ischemic heart disease, hypertension, obstructive lung disease, diabetes mellitus, and death from cardiovascular disease in adulthood. FGR may be caused by conditions affecting the fetus such as infections and chromosomal and congenital anomalies. Restricted growth is also associated with maternal height, prepregnancy weight, birth interval, and maternal smoking. WIC's emphasis on preventive strategies to combat smoking, improve nutrition, and increase birth interval, may provide the guidance needed to improve fetal growth.

References

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2. Barros FC, Huttly SR, Victora CG, Kirkwood BR, Vaughan JP. Comparison of the causes and consequences of prematurity and intrauterine growth retardation: a longitudinal study in southern Brazil. Pediatrics 1992; 90:238-44.
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9. Williams SR. Nutrition and diet therapy. St. Louis, Missouri: Times Mirror/Mosby College Pub, 1989.
10. Worthington-Roberts BS, Williams SR. Nutrition During Pregnancy and Lactation. St. Louis: Mosby, 1989.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

337 History of Birth of a Large for Gestational Age Infant

Definition/Cut-off Value

History of birth of a large for gestational age infant is defined as follows:

Category	Definition
Pregnant Women	Any history of giving birth to an infant weighing greater than or equal to 9 lbs. (4000 grams).
Breastfeeding/Non-Breastfeeding Women	Most recent pregnancy, or history of giving birth to an infant weighing greater than or equal to 9 lbs. (4000 grams).

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Women with a previous delivery of an infant weighing greater than 9 lbs. (4000 grams) are at an increased risk of giving birth to a large for gestational age infant (1). Macrosomia may be an indicator of maternal diabetes (current or gestational) or a predictor of future diabetes (2).

The incidence of maternal, fetal, and neonatal complications is high with neonates weighing greater than 9 lbs. (4000 grams). Risks for the infant include dystocia, meconium aspiration, clavicular fracture, brachia plexus injury, and asphyxia (3).

References

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2. Institute of Medicine. WIC nutrition risk criteria a scientific assessment. Washington (DC): National Academy Press; 1996. p. 117.

3. Institute of Medicine. Nutrition during pregnancy. Washington, (DC): National Academy Press; 1990. p. 190.

Clarification

Self-reporting of "History of …" conditions should be treated in the same manner as self-reporting of current conditions requiring a physician's diagnosis, i.e., the applicant may report to the CPA that s/he was diagnosed by a physician with a given condition at some point in the past. As with current conditions, self- diagnosis of a past condition should never be confused with self-reporting.

338 Pregnant Woman Currently Breastfeeding

Definition/Cut-off Value

Breastfeeding woman now pregnant.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I

Justification

Breastfeeding during pregnancy can influence the mother's ability to meet the nutrient needs of her growing fetus and nursing baby. Generally, pregnancy hormones cause the expectant mother's milk supply to drastically decline (until after delivery). If the mother conceived while her nursing baby was still solely or predominantly breastfeeding, the baby could fail to receive adequate nutrition. In addition to changes in milk volume and composition, mothers who breastfeed throughout a pregnancy usually report that their nipples, previously accustomed to nursing, become extremely sensitive (presumably due to pregnancy hormones). When women nurse through a pregnancy it is possible that oxytocin released during breastfeeding could trigger uterine contractions and premature labor. When a mother chooses to nurse through a pregnancy, she needs breastfeeding counseling.

References

1. Mohrbacher N, Stock J, La LL, I. The breastfeeding answer book. Schaumburg, Ill: La Leche League International, 1997.

339 History of Birth with Nutrition Related Congenital or Birth Defect

Definition/Cut-off Value

A woman who has given birth to an infant who has a congenital or birth defect linked to inappropriate nutritional intake, e.g., inadequate zinc, folic acid, excess vitamin A.

Category	Definition
Pregnant Women	Any history of birth with nutrition-related congenital or birth defect.
Breastfeeding/Non-Breastfeeding	Most recent pregnancy.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

The single greatest risk factor for a pregnancy with a neural tube defect is a personal or family history of such a defect. More than 50% of recurrences can be prevented by taking folic acid before conception. Recent studies suggest that intake of folic acid may also be inversely related to the occurrence of cleft lip and palate. The WIC Program provides nutrition education and folic acid-rich foods to women to help prevent future birth defects.

Recurrent birth defects can also be linked to other inappropriate nutritional intake prior to conception or during pregnancy, such as inadequate zinc (LBW) or excess vitamin A (cleft palate or lip). The food package and nutrition education provided to WIC participants help women at risk make food choices that provide appropriate nutrient levels.

References

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Clarification

Self-reporting of "History of …" conditions should be treated in the same manner as self-reporting of current conditions requiring a physician's diagnosis, i.e., the applicant may report to the CPA that s/he was diagnosed by a physician with a given condition at some point in the past. As with current conditions, self- diagnosis of a past condition should never be confused with self-reporting.

341 Nutrient Deficiency Diseases

Definition/Cut-off Value

Diagnosis of nutritional deficiencies or a disease caused by insufficient dietary intake of macro and micronutrients. Diseases include, but are not limited to, Protein Energy Malnutrition, Scurvy, Rickets, Beri Beri, Hypocalcemia, Osteomalacia, Vitamin K Deficiency, Pellagra, Cheilosis, Menkes Disease, and Xerophthalmia.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

The presence of macro- and micro-nutrient deficiencies indicates current nutrition health risks. Persistent malnutrition may lead to elevated morbidity and mortality rates. Important functional disturbances may occur as a result of single or multiple nutrient deficiencies. Examples include impaired cognitive function, impaired function of the immune system, and impaired function of skeletal muscle. Participation in the WIC Program provides key nutrients and education to help restore nutrition status and promote full rehabilitation of those with an overt nutrient deficiency.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

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342 Gastrointestinal Disorders

Definition/Cut-off Value

Disease(s) and/or condition(s) that interferes with the intake or absorption of nutrients. The diseases and/or conditions include, but are not limited to:

Gastrointestinal Disorders	
Gastroesophageal reflux disease (GERD)	Peptic ulcer
Post-bariatric surgery	Short bowel syndrome
Inflammatory bowel disease, including ulcerative colitis or Crohn's disease	Liver disease
Pancreatitis	Biliary tract disease

Presence of gastrointestinal disorders diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Gastrointestinal disorders increase nutritional risk in a number of ways, including restricted food intake, abnormal deglutition, impaired digestion of food in the intestinal lumen, generalized or specific nutrient malabsorption, or excessive gastrointestinal losses of endogenous fluids and nutrients. Frequent loss of nutrients through vomiting, diarrhea, malabsorption, or infections can result in malnourishment and lowered disease resistance (1, 2). Nutrition management plays a prominent role in the treatment of gastrointestinal disorders.

Gastroesophageal Reflux Disease (GERD)

GERD is irritation and inflammation of the esophagus due to reflux of gastric acid into the esophagus (3). Nutritional care of GERD includes avoiding eating within 3 hours before going to bed; avoiding fatty foods, chocolate, peppermint, and spearmint, which may relax the lower esophageal sphincter; and coffee and alcoholic beverages, which may increase gastric secretion (4). Consumption of these items may need to be limited depending on individual tolerance.

Peptic Ulcer

Peptic ulcer normally involves the gastric and duodenal regions of the gastrointestinal tract (4). Because the primary cause of peptic ulcers is Helicobacter pylori infection, the focus of treatment is the elimination of the bacteria with antibiotic and proton pump inhibitor therapy. Dietary advice for persons with peptic ulcers is to avoid alcohol, coffee (with and without caffeine), chocolate, and specific spices, such as black pepper (4, 5).

Post-bariatric Surgery

Many types of surgical procedures are used for the intervention of morbid obesity. These procedures promote weight loss by restricting dietary intakes, e.g., adjustable gastric banding (AGB), and/or bypassing some portion of intestine to cause incomplete digestion and/or malabsorption of nutrients, e.g., Roux-y gastric bypass (RYGB). Therefore, the risks for developing nutritional deficiencies after bariatric surgery are greatly increased. Since gastric bypass individuals have both a decreased availability of gastric acid and intrinsic factor, vitamin B12 deficiency can develop without supplementation. Taking daily nutritional supplements and eating foods high in vitamins and minerals are important aspects of the nutritional management for the individuals who have had bariatric surgery (6).

Short Bowel Syndrome (SBS)

SBS is the result of extensive small bowel resection. SBS in infants is mostly the result of small bowel resection for the treatment of congenital anomalies, necrotizing enterocolitis, and congenital vascular. In adults, Crohn's disease, radiation enteritis, mesenteric vascular accidents, trauma, and recurrent intestinal obstruction are the most common conditions treated by small bowel resection and resulting in SBS (4). The loss of a large segment of the small bowel causes malabsorption syndrome. Total parenteral nutrition usually is started within the first few days after intestinal resection. Gradual supplementation with enteral feeding promotes intestinal adaptation in order to wean from parenteral nutrition therapy. Supplementation with fat soluble vitamins and vitamin B12 may be needed (7). The pediatric client's nutritional status must be assessed and growth closely monitored (8).

Inflammatory Bowel Disease (IBD)

Inflammatory bowel disease includes Crohn's disease and ulcerative colitis. Weight loss, growth impairment, and malnutrition are the most prevalent nutritional problems observed in IBD. Nutritional support is essential. Exclusive elemental nutrition has been used in attaining the remission of Crohn's disease. However, symptoms tend to recur promptly after resuming the conventional diet (9).

Liver Disease

Since the liver plays an essential role in the metabolic processes of nutrients, liver disorders have far- reaching effects on nutritional status. Acute liver injury is often associated with anorexia, nausea and vomiting. Therefore, inadequate nutritional intakes are common. Decreased bile salt secretion is associated with the maldigestion and impaired absorption of fat and fat-soluble vitamins. Defects in protein metabolism associated with chronic liver failure include decreased hepatic synthesis of albumin, coagulation factors, urea synthesis and metabolism of aromatic amino acids. For nutritional therapy, an important consideration should be the balance between preventing muscle wasting and promoting liver regeneration without causing hepatic encephalopathy.

It is recommended that persons with chronic liver disease consume the same amount of dietary protein as that required by normal individuals (0.74g/kg) (10).

Pancreatic Disease

In chronic pancreatitis, there is a reduced secretion of pancreatic enzymes leading to malabsorption. In severe cases, tissue necrosis can occur. It is suggested that for patients with pancreatitis, a high carbohydrate, low-fat, low protein diet may be helpful (11).

Biliary Tract Diseases

Common diseases of the biliary tract are:

- Cholelithiasis (gallstones, without infection).
- Choledocholithiasis (gallstone in the bile duct causing obstruction, pain and cramps).
- Cholecystitis (inflammation of gallbladder caused by bile duct obstruction).

Obesity or severe fasting may increase risk for these disorders. Since lipids stimulate gallbladder contractions, a low fat diet with 25% to 30% of total calories as fat is recommended. Greater fat limitation is undesirable as some fat is required for stimulation and drainage of the biliary tract. Supplementation with fat-soluble vitamins may be needed for persons with fat malabsorption or a chronic gall bladder condition (12).

WIC nutritionists can provide counseling to support the medical nutrition therapy given by clinical dietitians, and monitor compliance with therapeutic dietary regimens. They can also review and provide WIC- approved medical foods or formulas prescribed by the health care providers. In certain circumstances, WIC staff may recommend an appropriate medical food or formula to the health care provider. They should also make referrals to an appropriate health care provider for medical nutrition therapy by a clinical dietitian when indicated.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

343 Diabetes Mellitus

Definition/Cut-off Value

Diabetes mellitus consists of a group of metabolic diseases characterized by inappropriate hyperglycemia resulting from defects in insulin secretion, insulin action or both (1).

Presence of diabetes mellitus diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Diabetes mellitus may be broadly described as a chronic, systemic disease characterized by:

- Abnormalities in the metabolism of carbohydrates, proteins, fats, and insulin; and
- Abnormalities in the structure and function of blood vessels and nerves (2).

The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels (1, 2) and includes type 1 diabetes mellitus, type 2 diabetes mellitus, and Maturity Onset Diabetes of the Young (MODY). MODY is a series of familial disorders characterized by early onset and mild hyperglycemia. Specific genetic defects have been identified on chromosomes 7, 12, and 20 (2). MODY is often diagnosed before the age of 25 years. It is caused by dominantly inherited defect of insulin secretion. Persons with MODY are often non-obese and without metabolic syndrome (3).

The two major classifications of diabetes are type 1 diabetes (beta-cell destruction, usually leading to absolute insulin deficiency); and type 2 diabetes (ranging from predominantly insulin resistance with relative insulin deficiency to a predominantly insulin secretory defect with insulin resistance) (1). The Expert Committee on Diagnosis and Classification of Diabetes Mellitus, working under the sponsorship of the American Diabetes Association, has identified the criteria for the diagnosis of diabetes mellitus (1, 2) (see clarification).

Long-term complications of diabetes include retinopathy with potential loss of vision, nephropathy leading to renal failure; peripheral neuropathy with risk of foot ulcers, amputations, and Charcot joints; and, autonomic neuropathy causing gastrointestinal, genitourinary, cardiovascular symptoms and sexual dysfunction. Patients with diabetes have an increased incidence of atherosclerotic cardiovascular, peripheral arterial and cerebrovascular diseases. Hypertension and abnormalities of lipoprotein metabolism are often found in people with diabetes (1).
WIC nutrition services can reinforce and support the medical and dietary therapies (such as Medical Nutrition Therapy) that participants with diabetes receive from their health care providers (4).

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.
Diabetes mellitus is sometimes described by both patients and health professionals as "a little bit of sugar" or "high sugar." In reality, "sugar" is only one component of the pathology and clinical manifestations of the multifaceted syndrome of diabetes mellitus (2).
Diabetes mellitus is diagnosed by a licensed medical provider using any one of the following three methods:

1. Fasting plasma glucose > 126 mg/dL (7.0 mmo1/L). Fasting is defined as no caloric intake for at least 8 hours.
2. Symptoms of hyperglycemia plus casual plasma glucose concentration > 200 mg/dl (11.1 mmo1/L).
    - Casual implies any time of day without regard to time since last meal.
    - The classic symptoms of hyperglycemia include polyuria, polydipsia, and unexplained weight loss.
3. Two-hour plasma glucose > 200mg/dL (11.1 mmo1/L) during a 75-g oral glucose tolerance test (OGTT) (1).

In the absence of unequivocal hyperglycemia, these criteria should be confirmed by repeat testing on a different day. The third measure (OGTT) is not recommended for routine clinical use.

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344 Thyroid Disorders

Definition/Cut-Off Value

Thyroid dysfunctions that occur in pregnant and postpartum women, during fetal development, and in childhood are caused by the abnormal secretion of thyroid hormones. The medical conditions include, but are not limited to, the following:

Thyroid Dysfunction	Definition
Hyperthyroidism	Excessive thyroid hormone production (most commonly known as Graves' disease and toxic multinodular goiter).
Hypothyroidism	Low secretion levels of thyroid hormone (can be overt or mild/subclinical). Most commonly seen as chronic autoimmune thyroiditis (Hashimoto's thyroiditis or autoimmune thyroid disease). It can also be caused by severe iodine deficiency.
Congenital Hyperthyroidism	Excessive thyroid hormone levels at birth, either transient (due to maternal Grave's disease) or persistent (due to genetic mutation).
Congenital Hypothyroidism	Infants born with an under active thyroid gland and presumed to have had hypothyroidism in-utero.
Postpartum Thyroiditis	Transient or permanent thyroid dysfunction occurring in the first year after delivery based on an autoimmune inflammation of the thyroid. Frequently, the resolution is spontaneous.

Presence of condition diagnosed, documented, or reported by a physician or someone working under physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

The thyroid gland manufactures three thyroid hormones: thyroxine (T_4), triiodothyronine (T_3), and calcitonin. The thyroid hormones regulate how the body gets energy from food (metabolism). Iodine is an essential component of the T_4 and T_3 hormones (1) and must come from the diet. (Note: In nature, iodine does not exist as a free element; rather, it forms compounds such as sodium iodide (2, 3). For more information see Clarification section.) Iodine is available from various foods, and is present naturally in soil and sea water. A dysfunctional thyroid gland can become enlarged (goiter) as a result of an overproduction of thyroid hormones (hyperthyroidism) or conversely, from insufficient thyroid hormone production (hypothyroidism). Thyroid hormones influence virtually every organ system in the body.

Maternal needs for dietary iodine and thyroid hormone medication (if prescribed) increase during pregnancy as maternal thyroid hormones and iodine are transferred to the fetus along with an increased loss of iodine through the maternal kidneys (3). Concurrently, the fetus is unable to produce thyroid hormones during the first trimester and is entirely dependent on the maternal supply of thyroid hormones. As a result, maternal production of T_4 must increase by at least 50% during pregnancy (4). If the pregnant woman is receiving thyroid hormone therapy, often a 30% - 50% increase in thyroid hormone medication is also needed.

Hyperthyroidism

Hyperthyroidism is a condition in which the thyroid gland is overactive, manufacturing too much thyroid hormone (T_4 and T_3). An excessive consumption of iodine (> 1000 µg/d) may cause fetal and maternal hyperthyroidism (5). In other circumstances, the thyroid might develop nodules which secrete excessive amounts of thyroid hormone regardless of iodine status (5). Enlargement of the thyroid gland (goiter) is a common symptom, as well as weight loss, fatigue, muscle weakness and an irregular heartbeat.

Hyperthyroidism is relatively uncommon in pregnancy (4). However, when it occurs, uncontrolled hyperthyroidism (especially in the second half of pregnancy) may result in infection, miscarriage, preterm delivery, preeclampsia, or congestive heart failure. Fetal complications may include prematurity, small for gestational age, fetal or neonatal thyrotoxicosis, or death (6). Postpartum maternal hyperthyroidism is likely in women with prenatal hyperthyroidism (7).

The primary medical therapy for hyperthyroidism is radioactive iodine therapy which is contraindicated during pregnancy and lactation (7). If hyperthyroidism occurs during this period, low doses of thiomide (antithyroid drug) are given instead.

Hypothyroidism

Hypothyroidism is a condition in which the thyroid gland does not make enough thyroid hormone. Maternal and fetal hypothyroidism may occur when preconception maternal iodine stores are insufficient and there is inadequate maternal iodine intake in early pregnancy. In this instance, the maternal iodine balance may become negative and may never be restored, even with eventual iodine supplementation (4).

Mothers with iodine deficiency during the first half of pregnancy may produce offspring with severe, irreversible brain damage (8). Maternal thyroid deficiency has been associated with neonatal developmental problems which may cause lasting changes in the brain structure and cognitive function.

Uncontrolled hypothyroidism in the second half of pregnancy can cause maternal complications such as anemia, preeclampsia, miscarriage, premature delivery, and postpartum thyroid disease. Fetal or neonatal complications include prematurity, low birth weight, congenital anomalies, poor neuropsychological development, and stillbirth (6).

When iodine nutrition status is adequate, autoimmune thyroid disease (AITD) – also called Hashimoto's thyroiditis - is the most common type of hypothyroidism during pregnancy (4). Pregnant women with AITD are at increased risk of miscarriage and postpartum thyroid disease (including thyroiditis, hyperthyroidism and hypothyroidism). There is an increased risk of permanent and significant impairment in cognitive function for their infants (9).

Congenital Hyperthyroidism and Hypothyroidism

Congenital hyperthyroidism is rare in neonates. Transient congenital hyperthyroidism is caused by maternal Graves disease. Thyroid stimulating immunoglobulin passes from the mother to the fetus via the placenta and causes thyrotoxicosis in the fetus and subsequently, the neonate. After the baby is born, improvement is rapid if the condition is treated using antithyroid drugs and the hyperthyroidism will subside within several weeks (10). Persistent congenital hyperthyroidism is a familial non-autoimmune disease. It is caused by a genetic mutation resulting in an increase in the constitutive activity of the TSH receptor (11).

Congenital hypothyroidism due to maternal iodine deficiency is a leading cause of preventable mental retardation (10). Over-treatment of thyroid hormone, during pregnancy, as well as prolonged maternal iodine therapy (more than two weeks of therapy or more than 1000 µg/iodine) can also cause congenital hypothyroidism (6). The condition is exacerbated by coexisting selenium and vitamin A deficiencies or iron deficiency (5). Treatment for neonatal hypothyroidism should be started as soon as possible, as every day of delay may result in loss of IQ. Unless treated shortly after birth (within the first 18 days of life), the resulting mental retardation will be irreversible (10).

Postpartum Thyroiditis

Postpartum thyroiditis, an autoimmune inflammation of the thyroid, occurs within the first year after delivery or sometimes after termination of pregnancy. It can be a transient thyroid dysfunction with a brief thyrotoxic phase followed by hypothyroidism, usually with a spontaneous resolution (10). Smoking is a significant precipitating factor in the onset of postpartum thyroiditis (9). Women with a past history of postpartum thyroiditis have a risk of long-term permanent hypothyroidism and recurrence of postpartum thyroiditis in subsequent pregnancies (12). Tests for this condition consist of radioactive products necessitating a temporary cessation of breastfeeding (usually up to 3 days).

Implications for WIC Nutrition Services

Individuals with thyroid disorders can benefit from WIC foods and WIC nutrition services can reinforce and support the medical and dietary therapy prescribed by the participants' health care provider. The following nutrition education messages may be appropriate depending on the type of thyroid disorder:

- Encourage iodine sufficiency, unless contraindicated, with an adequate intake of foods high in iodine such as iodized table salt, bread, saltwater fish, kelp, egg yolks (because of iodine supplementation in chicken feed), milk and milk products (because of the treatment of cows with supplemental dietary iodine) (5). It is important to note that the salt used in manufactured foods is not iodized.
- Advise women to review the iodine content of their prenatal supplement. It is recommended that all prenatal vitamin-mineral supplements for use during pregnancy and lactation contain at least 150 micrograms of iodine a day (13). Currently, less than 50 percent of prenatal vitamins on the market contain iodine (5, 7).
- Promote breastfeeding, as there are no contraindications to breastfeeding and thyroid hormone replacement therapy as long as normal thyroxine levels in the maternal plasma are maintained. Breast milk provides iodine to the infant and is influenced by the dietary intake of the pregnant and lactating mother (14). Hyperthyroidism can develop for the first time during the postpartum period, but the mother's ability to lactate is not affected. However, if a woman with untreated hypothyroidism breastfeeds, her milk supply may be insufficient. In such instances, replacement thyroid hormone therapy is necessary to help increase milk production.
- Weight management - hyperthyroidism: The elevated plasma levels of thyroid hormones may cause increased energy expenditure and weight loss along with increased appetite. Following medical treatment, individuals with hyperthyroidism usually regain their typical body weight with a concurrent decrease in appetite (4). Therefore, the monitoring of weight status and dietary adequacy are recommended.
- Weight management – hypothyroidism: Many individuals with hypothyroidism experience an increase in weight due to both a decrease in basal metabolic rate and an excessive accumulation of water and salt. Most of the weight gained is due to the excess water and salt retention. After medical treatment, a small amount of weight may be lost, usually less than 10% of body weight (15). Once hypothyroidism has been treated and thyroid hormones are within normal levels, it is less likely that the weight gain is solely due to the thyroid. If an overweight condition persists, weight control therapy may be necessary.
- Recommend the cautionary use of soy formula and the avoidance of foods or supplements rich in soy, fiber, or iron when therapeutic thyroid medications are prescribed, since soy, iron, calcium, fiber and phytates may interfere with the absorption of oral thyroid hormone therapy (16, 17).
- Discourage smoking as the compound thiocynate found in tobacco smoke inhibits iodine transport (9).

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Iodine (I_2) is an element. In the ambient temperature, it is volatile and forms blue-violet gas. In nature, it does not exist as free element. Instead, it forms compounds, such as sodium **iodide** (NaI), and potassium **iodide** (KI). To prevent iodine deficiency, potassium iodide is added to the salt (most commonly to table salt) to form iodized salt (2, 3).

345 Hypertension and Prehypertension

Definition/Cut-off Value

Presence of hypertension or prehypertension diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Hypertension, commonly referred to as high blood pressure, is defined as persistently high arterial blood pressure with systolic blood pressure above 140 mm Hg or diastolic blood pressure above 90 mm Hg (1). People with high blood pressure can be asymptomatic for years (2). Untreated hypertension leads to many degenerative diseases, including congestive heart failure, end-stage renal disease, and peripheral vascular disease.

There is a large segment of the population that falls under the classification of prehypertension, with blood pressure readings between 130/80 to 139/89 mm Hg (3). People with prehypertension are twice as likely to develop hypertension (3).

There is no cure for hypertension (2); however lifestyle modifications can prevent high blood pressure and are critical in the management of hypertension and prehypertension (3).

Risk factors for hypertension include (4):

- Age (increases with age)
- Race/ethnicity (occurs more often and earlier in African Americans)
- Overweight or obesity
- Male gender
- Unhealthy nutrient consumption and lifestyle habits (e.g., high sodium intake, excessive alcohol consumption, low potassium intake, physical inactivity, and smoking)
- Family history
- Chronic stress

Management of hypertension includes lifestyle modifications and medication. In prehypertensive individuals, implementing lifestyle changes can prevent or delay the onset of hypertension (3, 5). In hypertensive individuals, dietary intervention is not only effective in reducing blood pressure but also in delaying drug treatment (6).

Lifestyle changes to manage hypertension and prehypertension include:

- Consuming a diet consistent with the Dietary Guidelines for Americans or following the DASH (Dietary Approaches to Stop Hypertension) eating plan, if recommended by a physician
- Limiting dietary sodium
- Engaging in regular physical activity
- Achieving and maintaining a healthy weight
- Smoking cessation

The WIC Program provides fruits, vegetables, low fat milk and cheese, which are important components of the DASH eating plan. WIC nutritionists provide nutrition education and counseling to reduce sodium intakes, achieve/maintain proper weight status, promote physical activity, and make referrals to smoking cessation programs, which are the lifestyle interventions critical to the management of hypertension/prehypertension.

Pregnant Women: Hypertension is the most common medical complication of pregnancy, occurring in 7% of all pregnancies. Hypertension during pregnancy may lead to low birth weight, fetal growth restriction, and premature delivery, as well as maternal, fetal, and neonatal morbidity (7). Hypertensive disorders of pregnancy are categorized as (8, 9):

- **Chronic Hypertension**: Hypertension that was present before pregnancy. It increases perinatal mortality and morbidity through an increased risk of SGA (small for gestational age) infants. Women with chronic hypertension are at risk for complications of pregnancy such as preeclampsia. There is a 25% risk of superimposed preeclampsia and an increased risk for preterm delivery, fetal growth restriction, congestive heart failure and renal failure.

- **Preeclampsia**: A pregnancy-specific syndrome observed after the 20th week of pregnancy with elevated blood pressure accompanied by significant proteinuria.

- **Eclampsia**: The occurrence of seizures in a woman with preeclampsia that cannot be attributed to other causes.

- **Preeclampsia superimposed upon chronic hypertension**: Preeclampsia occurring in a woman with chronic hypertension. It is the major leading factor of maternal and infant mortality and morbidity.

- **Gestational Hypertension**: Blood pressure elevation detected for the first time after midpregnancy without proteinuria. It presents minimal risks to mother and baby when it does not progress to preeclampsia.

The term “pregnancy-induced hypertension” includes gestational hypertension, preeclampsia and eclampsia. For more information about preeclampsia, please see risk #304, History of Preeclampsia.

The following conditions are associated with an increased incidence of pregnancy-induced hypertension (4):

- Inadequate diet
- Nutritional deficiencies, including low protein, essential fatty acid, or magnesium intake
- Inadequate calcium intake in early pregnancy (7)
- Obesity
- Primigravidity

- Age (pregnancy before age 20 or after age 40)
- Multi-fetal gestation
- Genetic disease factors
- Familial predisposition

The impact of hypertension continues after delivery. Special consideration must be given to lactating women with high blood pressure, especially if their care plan includes medication. It is important that the hypertensive lactating woman inform her physician of her breastfeeding status if she is also taking medication to determine whether they pose any risks to the infant. However, hypertension is not a contraindication for lactation. Lactation, as suggested in research, is thought to present some therapeutic advantages in the management of the disease in women (10, 11, 12).

Children: Hypertension during childhood is age-specific, and is defined as blood pressure readings greater than the 95th percentile for age, gender, and height on at least three separate occasions. Blood pressure reading between the 90th and 95th percentile is considered prehypertension (13). Children with high blood pressure are more likely to become hypertensive adults (15). Therefore, they should have their blood pressure checked regularly beginning at the age of three (14, 15).

Epidemiologic data suggests an association between childhood obesity and high blood pressure (16). Blood pressure and overweight status have been suggested as criteria to identify hypertensive children. Weight control decreases blood pressure, sensitivity to salt and other cardiovascular risk factors (13).

Nutrition-related prevention efforts in overweight hypertensive children should aim at achieving a moderate weight loss or preventing further weight gain. Additionally, a decrease in time spent in sedentary activities with subsequent increase in physical activity should be emphasized.

Dietary changes conducive to weight management in children include:

- Portion control
- Decreased consumption of sugar-containing beverages and energy-dense snacks
- Increased consumption of fresh fruits and vegetables
- Regular meals, especially breakfast

The WIC Program provides nutritious supplemental foods and nutrition education compatible with changes needed to promote a healthy weight and decrease the impact of hypertension in children.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

346 Renal Disease

Definition/Cut-off Value

Any renal disease including pyelonephritis and persistent proteinuria, but excluding urinary tract infections (UTI) involving the bladder. Presence of condition, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Renal disease can result in growth failure in children and infants. In pregnant women, fetal growth is often limited and there is a high risk of developing a preeclampsia-like syndrome. Women with chronic renal disease often have proteinuria, with risk of azotemia if protein intake becomes too high.

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Clarification

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12/2013

347 Cancer

Definition/Cut-off Value

A chronic disease whereby populations of cells have acquired the ability to multiply and spread without the usual biologic restraints. The current condition, or the treatment for the condition, must be severe enough to affect nutritional status.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III
** Some cancer treatments may contraindicate breastfeeding.*	

Justification

An individual's nutritional status at the time of diagnosis of cancer is associated with the outcome of treatment. The type of cancer and stage of disease progression determines the type of medical treatment, and if indicated, nutrition management. Individuals with a diagnosis of cancer are at significant health risk and under specific circumstances may be at increased nutrition risk, depending upon the stage of disease progression or type of ongoing cancer treatment.

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348 Central Nervous System Disorders

Definition/Cut-off Value

Conditions which affect energy requirements, ability to feed self, or alter nutritional status metabolically, mechanically, or both. These include, but are not limited to:

Central Nervous System Disorders	
Epilepsy	Cerebral palsy (CP)
Neutral tube defects (NTDs), such as spina bifida	Parkinson's disease
Multiple sclerosis (MS)	

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Epileptics are at nutrition risk due to alterations in nutritional status from prolonged anti-convulsion therapy, inadequate growth, and physical injuries from seizures (1). The ketogenic diet has been used for the treatment of refractory epilepsy in children (2). However, children on a ketogenic diet for six months or more have been observed to have slower gain in weight and height (3, 4). Growth monitoring and nutrition counseling to increase energy and protein intakes while maintaining the ketogenic status are recommended (4). In some cases, formula specifically prepared for children on a ketogenic diet is necessary. Women on antiepileptic drugs (AEDs) present a special challenge. Most AEDs have been associated with the risk of neural tube defects on the developing fetus. Although it is unclear whether folic acid supplementation protects against the embryotoxic and teratogenic effects of AEDs, folic acid is recommended for women with epilepsy as it is for other women of childbearing age (5-7).

Oral motor dysfunction is associated with infants and children with cerebral palsy (CP). These infants and children often have poor growth due to eating impairment, such as difficulty in spoon feeding, biting, chewing, sucking, drinking from a cup and swallowing. Rejection of solid foods, choking, coughing, and spillage during eating are common among these children (8, 9). Growth monitoring and nutrition counseling to modify food consistency and increase energy and nutrient intakes are recommended. Some children may require tube feeding and referral to feeding clinics, where available.

Limited mobility or paralysis, hydrocephalus, limited feeding skills, and genitourinary problems put children with neural tube defects (NTDs) at increased risk of abnormal growth and development. Ambulatory disability, atrophy of the lower extremities, and short stature place NTDs affected children at high risk for increased body mass index (10). Growth monitoring and nutrition counseling for appropriate feeding practices are suggested.

In some cases, participants with Parkinson's disease require protein redistribution diets to increase the efficacy of the medication used to treat the disease (11). Participants treated with levodopa-carbidopa may also need to increase the intake of B vitamins (12). Participants with Parkinson's disease will benefit from nutrition education/counseling on dietary protein modification, which emphasizes adequate nutrition and meeting minimum protein requirements. Additionally, since people with Parkinson's often experience unintended weight loss (13), it is important to monitor for adequate maternal weight gain.

Individuals with multiple sclerosis (MS) may experience difficulties with chewing and swallowing that require changes in food texture in order to achieve a nutritionally adequate diet (14). Obesity and malnutrition are frequent nutrition problems observed in individuals with MS. Immobility and the use of steroids and anti-depressants are contributing factors for obesity. Dysphagia, adynamia, and drug therapy potentially contribute to malnutrition. Both obesity and malnutrition have detrimental effects on the course of the disease. Adequate intakes of polyunsaturated fatty acids, vitamin D, vitamin B_{12} and a diet low in animal fat have been suggested to have beneficial effects in relapsing-remitting MS (15-17). Breastfeeding advice to mothers with MS has been controversial. However, there is no evidence to indicate that breastfeeding has any deleterious effect on women with MS. In fact, breastfeeding should be encouraged for the health benefits to the infant (18). In addition, mothers who choose to breastfeed should receive the necessary support to enhance breastfeeding duration.

As a public health nutrition program, WIC plays a key role in health promotion and disease prevention. As such, the nutrition intervention for participants with medical conditions should focus on supporting, to the extent possible, the medical treatment and/or medical/nutrition therapy a participant may be receiving. Such support may include: investigating potential drug-nutrient interactions; inquiring about the participant's understanding of a prescribed special diet; encouraging the participant to keep medical appointments; tailoring the food package to accommodate the medical condition; and referring the participant to other health and social services.

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Clarification

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349 Genetic and Congenital Disorders

Definition/Cut-off Value

Hereditary or congenital condition at birth that causes physical or metabolic abnormality. The current condition must alter nutrition status metabolically, mechanically, or both. May include, but is not limited to, cleft lip or palate, Down's syndrome, thalassemia major, sickle cell anemia (not sickle cell trait), and muscular dystrophy.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

For women, infants, and children with these disorders, special attention to nutrition may be required to achieve adequate growth and development and/or to maintain health.

Severe cleft lip and palate anomalies commonly cause difficulty with chewing, sucking and swallowing, even after extensive repair efforts (5). Surgery is required for many gastrointestinal congenital anomalies. (Examples are: trachea-esophageal fistula, esophageal atresia, gastroschisis, omphalocele, diaphragmatic hernia, intestinal atresia, and Hirschsprung's Disease.)

Impaired esophageal atresia and trachea-esophageal fistula can lead to feeding problems during infancy. The metabolic consequences of impaired absorption in short bowel-syndrome depend on the extent and site of the resection or the loss of competence. Clinical manifestations of short bowel syndrome include diarrhea, dehydration, edema, general malnutrition, anemia, dermatitis, bleeding tendencies, impaired taste, anorexia, and renal calculi. Total parenteral feedings are frequently necessary initially, followed by gradual and individualized transition to oral feedings. After intestinal resection a period of adaptation by the residual intestine begins and may last as long as 12-18 months (3). Even after oral feedings are stabilized, close follow-up and frequent assessment of the nutritional status of infants with repaired congenital gastro-intestinal anomalies is recommended (5).

Sickle-cell anemia is an inherited disorder in which the person inherits a sickle gene from each parent. Persons with sickle-cell trait carry the sickle gene, but under normal circumstances are completely asymptomatic. Good nutritional status is important to individuals with sickle-cell anemia to help assume adequate growth (which can be

compromised) and to help minimize complications of the disease since virtually every organ of the body can be affected by sickle-cell anemia (i.e., liver, kidneys, gall bladder, and immune system). Special attention should be given to assuring adequate caloric, iron, folate, vitamin E and vitamin C intakes as well as adequate hydration.

Muscular dystrophy is a familial disease characterized by progressive atrophy and wasting of muscles. Changes in functionality and mobility can occur rapidly and as a result children may gain weight quickly (up to 20 pounds in a 6 month period). Early nutrition education that focuses on foods to include in a balanced diet, limiting foods high in simple sugars and fat and increasing fiber intake can be effective in minimizing the deleterious effects of the disease.

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351 Inborn Errors of Metabolism

Definition/Cut-Off Value

Inherited metabolic disorders caused by a defect in the enzymes or their co-factors that metabolize protein, carbohydrate, or fat.

Inborn errors of metabolism (IEM) generally refer to gene mutations or gene deletions that alter metabolism in the body, including but not limited to:

Inborn Errors of Metabolism*	
Amino Acid Disorders	Urea Cycle Disorders
Organic Acid Metabolism Disorders	Carbohydrate Disorders
Fatty Acid Oxidation Disorders	Peroxisomal Disorders
Lysosomal Storage Diseases	Mitochondrial Disorders
**For information about additional IEM, please see Clarification.*	

Presence of condition diagnosed, documented, or reported by a physician or someone working under physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Infants	I
Children	III
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

The inheritance of most metabolic disorders is rare. IEM disorders may manifest at any stage of life, from infancy to adulthood. Early identification of IEM correlates with significant reduction in morbidity, mortality, and associated disabilities for those affected (1).

All States screen newborns for IEM, although the type and number of IEM screened for may vary from State to State. Typically, infants are screened for amino acid disorders, urea cycle disorders, organic acid disorders, and fatty acid oxidation defects. A few States are working toward including lysosomal storage diseases and paroxysmal disorders among their newborn screening panels (2).

In most states, treatment of an IEM is referred to a specialized metabolic treatment facility. Please see Clarification for contact information for treatment facilities. IEM treatment is based on symptomatic therapy which may include the following strategies: substrate restriction; stimulation or stabilization of residual enzyme activity; replacement of deficient products; removal of toxic metabolites or blocking their production; and enzyme replacement therapy (3). Avoidance of catabolism is essential at all treatment stages.

Nutrition therapy is integral to the treatment of IEM. Nutrition therapy should both correct the metabolic imbalance and ensure adequate energy, protein, and nutrients for normal growth and development among affected individuals. Continual monitoring of nutrient intake, laboratory values, and the individual's growth are needed for evaluation of the adequacy of the prescribed diet (4). It is important that caregivers of infants and children with IEM ensure that the patient follows the prescribed dietary regimen. The below embedded links provide the most up-to-date information about the disease state as well as treatment.

Amino Acid Metabolism Disorders (3)

- Phenylketonuria (includes clinically significant hyperphenylalaninemia variants)
- Maple syrup urine disease
- Homocystinuria
- Tyrosinemia

Amino Acid Metabolism Disorders are characterized by the inability to metabolize a certain essential amino acid. The build-up of the amino acid that is not metabolized can be toxic. Treatment of amino acid disorders involves restricting one or more essential amino acids to the minimum required for growth and development and supplying the missing product due to the blocked reaction.

Carbohydrate Disorders (5)

- Galactosemia
- Glycogen storage disease type I
- Glycogen storage disease type II (See also Pompe disease)
- Glycogen storage disease type III
- Glycogen storage disease type IV (Andersen Disease)
- Glycogen storage disease type V
- Glycogen storage disease type VI
- Hereditary Fructose Intolerance (Fructose 1-phosphate aldolase deficiency, Fructose 1, 6, biphosphatase deficiency, fructose kinase deficiency)

This group of disorders includes an enzyme deficiency or its cofactor that affects the catabolism or anabolism of carbohydrate. Carbohydrate disorders are complex and affect neurological, physical, and nutritional status.

Fatty Acid Oxidation Defects (5)

1. Medium-chain acyl-CoA dehydrogenase deficiency
2. Long-chain 3-hydroxyacyl-CoA dehydrogenase deficiency
3. Trifunctional protein deficiency type 1 (LCHAD deficiency)

4. Trifunctional protein deficiency type 2 (mitochondrial trifunctional protein deficiency)
5. Carnitine uptake defect (primary carnitine deficiency)
6. Very long-chain acyl-CoA dehydrogenase deficiency

Fatty acid oxidation defects include any enzyme defect in the process of mitochondrial fatty acid oxidation (FAO) system. The biochemical characteristic of all FAO defects is abnormal low ketone production as a result of the increased energy demands. This results in fasting hypoglycemia with severe acidosis secondary to the abnormal accumulation of intermediate metabolites of FAO, which can result in death.

Organic Acid Disorders (AKA organic aciduria or organic acidemia) (6)

- Isovaleric acidemia
- 3-Methylcrotonyl-CoA carboxylase deficiency
- Glutaric acidemia type I
- Glutaric acidemia type II
- 3-hydroxy-3-methylglutaryl-coenzyme A lyase deficiency
- Multiple carboxylase deficiency (Biotinidase deficiency, Holocarboxylase synthetase deficiency)
- Methylmalonic acidemia
- Propionic acidemia
- Beta-ketothiolase deficiency

Organic Acid Disorders are characterized by the excretion of non-amino organic acids in the urine. Most of the disorders are caused by a deficient enzyme involving the catabolism of specific amino acid(s). As a result, the non-metabolized substance accumulates due to the blockage of the specific metabolic pathway, which is toxic to certain organs and may also cause damage to the brain (7).

Lysosomal Storage Diseases (6, 8)

- Fabry disease (α-galactosidase A deficiency)
- Gauchers disease (glucocerebrosidase deficiency)
- Pompe disease (glycogen storage disease Type II, or acid α-glucosidase deficiency)

Lysosomal storage diseases are a group of related conditions characterized by increased storage of undigested large molecule in lysosomes. Lysosome is a cellular organelle responsible for intracellular degradation and recycling of macromolecules. Due to a defect in a specific lysosomal enzyme, the macromolecule that normally would be metabolized is not broken down; instead, it accumulates in the lysosomes. This leads to tissue damage, organ failures and premature death. Common clinical features include bone abnormalities, organomegaly, developmental impairment and central, peripheral nervous system disorders.

Mitochondrial Disorders (6, 8)

- Leber hereditary optic neuropathy
- Mitochondrial encephalomyopathy, lactic acidosis, and stroke-like episodes (MELAS)
- Mitochondrial neurogastrointestinal encephalopathy disease (MNGIE)
- Myoclonic epilepsy with ragged-red fibers (MERRF)
- Neuropathy, ataxia, and retinitis pigmentosa (NARP)
- Pyruvate carboxylase deficiency

Mitochondrial Disorders are caused by the dysfunction of the mitochondrial respiratory chain, or electron transport chain (ETC). Mitochondria play an essential role in energy production. The ETC dysfunction increases free radical production, which causes mitochondrial cellular damage, cell death and tissue necrosis and further worsens ETC dysfunction and thus forms a vicious cycle. The disorders can affect almost all organ systems. However, the organs and cells that have the highest energy demand, such as the brain and muscles (skeletal and cardiac) are most affected. The clinical features vary greatly among this group of disorders, but most have multiple organ dysfunctions with severe neuropathy and myopathy.

Peroxisomal Disorders (6, 8, 9)

- Zellweger Syndrome Spectrum
- Adrenoleukodystrophy (x-ALD)

There are two types of peroxisomal disorders: single peroxisomal enzyme deficiencies and peroxisomal biogenesis disorders. These disorders cause severe seizures and psychomotor retardation (9). Peroxisomes are small organelles found in cytoplasm of all cells. They carry out oxidative reactions which generate hydrogen peroxides. They also contain catalase (peroxidase), which is important in detoxifying ethanol, formic acid and other toxins. Single peroxisomal enzyme deficiencies are diseases with dysfunction of a specific enzyme, such as acyl coenzyme A oxidase deficiency. Peroxisomal biogenesis disorders are caused by multiple peroxisome enzymes such as Zellweger syndrome and neonatal adrenoleukodystrophy.

Urea Cycle Disorders (6, 5)

- Citrullinemia
- Argininosuccinic aciduria
- Carbamoyl phosphate synthetase I deficiency

Urea Cycle Disorders occur when any defect or total absence of any of the enzymes or the cofactors used in the urea cycle results in the accumulation of ammonia in the blood. The urea cycle converts waste nitrogen into urea and excretes it from the kidneys. Since there are no alternate pathways to clear the ammonia, dysfunction of the urea cycle results in neurologic damages.

Implications for WIC Nutrition Services

WIC can provide exempt infant formulas and WIC-eligible medical foods, including those specifically formulated for IEM. Most of the dietary regimens for IEM require a combination of medical food (special formula in most cases) and standard infant formula or prescribed conventional foods. For example, participants with IEM related to essential amino acid metabolism (such as PKU, MSUD), who are not developmentally ready for conventional foods; require both medical food without the offending amino acid(s), and human milk or standard infant formula.

It is recommended that WIC nutritionists collaborate with the clinical dietitians at the metabolic treatment facility, where available, to prescribe WIC food packages (Food Package III) according to the therapeutic diet ordered by the metabolic team, monitor the compliance of the restricted diet, and follow up on the growth and developmental status of the participants with IEM.

Note: Infants with classic galactosemia cannot be breastfed due to lactose in human milk.

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Clarification

IEM not listed within this write-up may be found under: http://rarediseases.info.nih.gov/GARD. Please keep in mind these additional resources are not meant for medical advice nor to suggest treatment.

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

The link below lists newborn screening coordinators. The coordinator can direct families to appropriate metabolic treatment facilities based on the newborn screening result: http://genes-r- us.uthscsa.edu/State_contacts.pdf.

12/2013

352 Infectious Diseases

Definition/Cut-off Value

A disease caused by growth of pathogenic microorganisms in the body severe enough to affect nutritional status. Includes, but is not limited to:

Infectious Diseases	
Tuberculosis	Hepatitis
Pneumonia	Bronchiolitis (3 episodes in last 6 months)
Meningitis	HIV (Human Immunodeficiency Virus infections)*
Parasitic infections	AIDS (Acquired Immunodeficiency Syndrome)*

The infectious disease must be present within the past 6 months, and diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III
**Breastfeeding is contraindicated for women with HIV or AIDS. Breastfeeding may be permitted for women with hepatitis (see Clarification for guidelines).*	

Justification

Chronic, prolonged, or repeated infections adversely affect nutritional status through increased nutrient requirements as well as through decreased ability to take in or utilize nutrients.

Catabolic response to infection increases energy and nutrient requirements and may increase the severity of medical conditions associated with infection.

Bronchiolitis is a lower respiratory tract infection that affects young children, usually under 24 months of age. It is often diagnosed in winter and early spring, and is caused by the respiratory syncytial virus (RSV). Recurring episodes of bronchiolitis may affect nutritional status during a critical growth period and lead to the development of asthma and other pulmonary diseases.

HIV is a member of the retrovirus family. HIV enters the cell and causes cell dysfunction or death. Since the virus primarily affects cells of the immune system, immunodeficiency results (AIDS). Recent evidence suggests that monocytes and macrophages may be the most important target cells and indicates that HIV can infect bone marrow stem cells. HIV infection is associated with the risk of malnutrition at all stages of infection.

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4. Lawrence, Ruth A: Maternal and Child Health Technical Information Bulletin: A Review of Medical Benefits and Contraindications to Breastfeeding in the United States; 1997; pp. 14-17.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Developments in the management and prevention of hepatitis have changed the management of infected women during pregnancy and have made breastfeeding safe. The following are guidelines for breastfeeding women with hepatitis, as found in the Technical Information Bulletin (10/97) "A Review of the Medical Benefits and Contraindications to Breastfeeding in the United States":

- Hepatitis A: Breastfeeding is permitted as soon as the mother receives gamma gobulin.
- Hepatitis B: Breastfeeding is permitted after the infant receives HBIG (Hepatitis B specific immunoglobin) and the first dose of the series of Hepatitis B vaccine.
- Hepatitis C: Breastfeeding is permitted for mothers without co-infection (e.g. HIV).

353 Food Allergies

Definition/Cut-off Value

Food allergies are adverse health effects arising from a specific immune response that occurs reproducibly on exposure to a given food. (1)

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V, or VI
Infants	I
Children	III

Justification

The actual prevalence of food allergies is difficult to establish due to variability in study designs and definitions of food allergies; however recent studies suggest a true increase in prevalence over the past 10 to 20 years (1). A meta-analysis conducted by the National Institute of Allergy and Infectious Disease (NIAID) found the prevalence of food allergy among all age groups between 1-10% (2). Further research has found that food allergy affects more children than recently reported with the prevalence estimated to be 8 % (2). Food allergies are a significant health concern as they can cause serious illness and life-threatening reactions. Prompt identification and proper treatment of food allergies improves quality of life, nutritional well-being and social interaction.

Food allergy reactions occur when the body's immune system responds to a harmless food as if it were a threat (3). The most common types of food allergies involve immunoglobulin E (IgE)-mediated responses. The immune system forms IgE against offending food(s) and causes abnormal reactions. IgE is a distinct class of antibodies that mediates an immediate allergic reaction. When food allergens enter the body, IgE antibodies bind to them and release chemicals that cause various symptoms. (1)

According to an expert panel sponsored by the National Institute of Allergy and Infectious Disease, individuals with a family history of any allergic disease are susceptible to developing food allergies and are classified as "at risk" or "high risk." Individuals who are "at risk" are those with a biological parent or sibling with existing, or history of, allergic rhinitis, asthma or atopic dermatitis. Individuals who are "high risk" are those with preexisting severe allergic disease and/or family history of food allergies. (1)

Food Allergies vs. Intolerances

Food intolerances are classified differently from food allergies based on the pathophysiological mechanism of the reactions. Unlike food allergies, food intolerances do not involve the immune system. Food intolerances are adverse reactions to food caused either by the properties of the food itself, such as a toxin, or the characteristics of the individual, such as a metabolic disorder (4). Food intolerances are often misdiagnosed as food allergies because the symptoms are often similar. Causes of food intolerances may include food poisoning, histamine toxicity, food additives such as monosodium glutamate (MSG), or sulfites (5). The most common food intolerance is lactose intolerance (see nutrition risk criterion #355, *Lactose Intolerance*).

Common Food Allergens

Although reactions can occur from the ingestion of any food, a small number of foods are responsible for the majority of food-induced allergic reactions (6). The foods that most often cause allergic reactions include:

- cow's milk (and foods made from cow's milk)
- eggs
- peanuts
- tree nuts (walnuts, almonds, cashews, hazelnuts, pecans, brazil nuts)
- fish
- crustacean shellfish (e.g., shrimp, crayfish, lobster, and crab)
- wheat
- soy

For many individuals, food allergies appear within the first two years of life. Allergies to cow's milk, eggs, wheat and soy generally resolve in early childhood. In contrast, allergy to peanuts and tree nuts typically persist to adulthood. Adults may have food allergies continuing from childhood or may develop sensitivity to food allergens encountered after childhood, which usually continue through life. (1)

Symptoms

There are several types of immune responses to food including IgE-mediated, non-IgE-mediated or mixed. In an IgE-mediated response, the immune system produces allergen-specific IgE antibodies (sIgE) when a food allergen first enters the body. Upon re-exposure to the food allergen, the sIgE identifies it and quickly initiates the release of chemicals, such as histamine (3). These chemicals cause various symptoms based on the area of the body in which they were released. These reactions occur within minutes or up to 4 hours after ingestion and include symptoms such as urticaria (hives), angioedema, wheezing, cough, nausea, vomiting, hypotension and anaphylaxis (7).

Food-induced anaphylaxis is the most severe form of IgE-mediated food allergies. It often occurs rapidly, within seconds to a few hours after exposure, and is potentially fatal without proper treatment. Food- induced anaphylaxis often affects multiple organ systems and produces many symptoms, including respiratory compromise (e.g., dyspnea, wheeze and bronchospasm), swelling and reduced blood pressure (7). Prompt diagnosis and treatment is essential to prevent life-threatening reactions. Tree nuts, peanuts, milk, egg, fish and crustacean fish are the leading causes of food-induced anaphylaxis (1).

Food allergens may also induce allergic reactions which are non-IgE-mediated. Non-IgE-mediated reactions generally occur more than 4 hours after ingestion, primarily result in gastrointestinal symptoms and are more chronic in nature (7). Examples of non-IgE-mediated reactions to specific foods include celiac disease (see nutrition risk criterion #354, Celiac Disease), food protein-induced enterocolitis syndrome (FPIES), food protein-induced proctocolitis (FPIP), food protein-induced gastroenteropathy, food-induced contact dermatitis and food-induced pulmonary hemosiderosis (Heiner's syndrome) (accessed May 2012) (8).

The diagnosis of food allergies by a health care provider (HCP) is often difficult and can be multifaceted (see Clarification for more information). Food allergies often coexist with severe asthma, atopic dermatitis (AD), eosinophilic esophagitis (EoE) and exercise-induced anaphylaxis. Individuals with a diagnosis of any of these conditions should be considered for food allergy evaluation. (1)

Prevention

Currently, there is insufficient evidence to conclude that restricting highly allergenic foods in the maternal diet during pregnancy or lactation prevents the development of food allergies in the offspring (9).

Adequate nutrition intake during pregnancy and lactation is essential to achieve positive health outcomes. Unnecessary food avoidance can result in inadequate nutrition. There is also a lack of evidence that delaying the introduction of solids beyond 6 months of age, including highly allergenic foods, prevents the development of food allergies. If the introduction of developmentally appropriate solid food is delayed beyond 6 months of age, inadequate nutrient intake, growth deficits and feeding problems can occur. (1)

The protective role that breastfeeding has in the prevention of food allergies remains unclear. There is some evidence for infants at high risk of developing food allergies that exclusive breastfeeding for at least 4 months may decrease the likelihood of cow's milk allergy in the first 2 years of life (9). The American Academy of Pediatrics (AAP) continues to recommend that all infants, including those with a family history of food allergies, be exclusively breastfed until 6 months of age, unless contraindicated for medical reasons (1, 10). For infants who are partially breastfed or formula fed, partially hydrolyzed formulas may be considered as a strategy for preventing the development of food allergies in at-risk infants. According to the AAP, there is no convincing evidence for the use of soy formula as a strategy for preventing the development of food allergies in at-risk infants and therefore it is not recommended. (9)

Management

Food allergies have been shown to produce anxiety and alter the quality of life of those with the condition. It is recommended that individuals with food allergies and their caregivers be educated on food allergen avoidance and emergency management that is age and culturally appropriate. Individuals with a history of severe food allergic reactions, such as anaphylaxis, should work with their HCP to establish an emergency management plan. (1)

Food allergen avoidance is the safest method for managing food allergies. Individuals with food allergies must work closely with their HCP to determine the food(s) to be avoided. This includes the avoidance of any cross-reactive foods, i.e., similar foods within a food group (see Clarification for more information). Nutrition counseling and growth monitoring is recommended for all individuals with food allergies to ensure a nutritionally adequate diet. Individuals with food allergies should also be educated on reading food labels and ingredient lists. (1)

Infants who are partially breastfed or formula fed, with certain non-IgE mediated allergies, such as, FPIES and FPIP may require extensively hydrolyzed casein or amino acid-based formula. According to food allergy experts, children with FPIES can be re-challenged every 18-24 months and, infants/children with FPIP can be re-challenged at 9-12 months of age. The re-challenging of foods should be done with HCP oversight. (8)

Implications for WIC Nutrition Services

Through client-centered counseling, WIC staff can assist families with food allergies in making changes that improve quality of life and promote nutritional well-being while avoiding offending foods. Based on the needs and interests of the participant, WIC staff can (as appropriate):

- Facilitate and encourage the participant's ongoing follow-up with the HCP for optimal management of the condition.
- Promote exclusive breastfeeding until six months of age and continue through the first year (10).
- Provide hypoallergenic formula for participants with appropriate medical documentation, as needed.
- Tailor food packages to substitute or remove offending foods.
- Educate participants on maintaining adequate nutritional intake while avoiding offending foods.
- Monitor weight status and growth patterns of participants.
- Educate participants about reading food labels and identifying offending foods and ingredients. See resources below:
    - http://www.fda.gov/downloads/ForConsumers/ConsumerUpdates/UCM254727.pdf. Accessed May 2012.
    - http://www.webmd.com/allergies/foodtriggers. Accessed May 2012.
    - http://www.foodallergy.org/section/how-to-read-a-label. Accessed May 2012.
- Educate participants on planning meals and snacks for outside the home.
- Refer participants to their HCP for a re-challenge of offending foods, as appropriate.
- Establish/maintain communication with participant's HCP.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Food allergies are diagnosed by a HCP by evaluating a thorough medical history and conducting a physical exam to consider possible trigger foods to determine the underlying mechanism of the reaction, which guides testing. Along with a detailed history of the disorder, such as symptoms, timing, common triggers and associations, there are several types of tests that the HCP may use in diagnosing food allergies. These include the following:

- Food Elimination Diet
- Oral Food Challenges
- Skin Prick Test (SPT)
- Allergen-specific serum IgE (sIgE)
- Atopy Patch Test

Diagnosing food allergies is difficult because the detection of sIgE does not necessarily indicate a clinical allergy. Often, more than one type of test is required to confirm a diagnosis. The double-blind, placebo- controlled food challenge is considered the gold standard in testing for food allergies. (11)

Children often outgrow allergies to cow's milk, soy, egg, and wheat quickly; but are less likely to outgrow allergies to peanut, tree nuts, fish, and crustacean shellfish. If the child has had a recent allergic reaction, there is no reason to retest. Otherwise, annual testing may be considered to see if the allergy to cow's milk, soy, egg, or wheat has been outgrown so the diet can be normalized. (1)

Cross-reactive food: When a person has allergies to one food, he/she tends to be allergic to similar foods within a food group. For example, all shellfish are closely related; if a person is allergic to one shellfish, there is a strong chance that person is also allergic to other shellfish. The same holds true for tree-nuts, such as almonds, cashews and walnuts. (1)

354 Celiac Disease

Definition/Cut-off Value

Celiac Disease (CD) is an autoimmune disease precipitated by the ingestion of gluten (a protein in wheat, rye, and barley) that results in damage to the small intestine and malabsorption of the nutrients from food. (1). (For more information about the definition of CD, please see the Clarification section)

CD is also known as:

- Celiac Sprue
- Gluten-sensitive Enteropathy
- Non-tropical Sprue

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V, or VI
Infants	I
Children	III

Justification

CD affects approximately 1% of the U.S. population (2, 3). CD can occur at any age and the treatment requires strict adherence to a gluten-free diet for life. CD is both a disease of malabsorption and an abnormal immune reaction to gluten. When individuals with CD eat foods or ingest products containing gluten, their immune system responds by damaging or destroying villi—the tiny, fingerlike protrusions lining the small intestine. Villi normally allow nutrients from food to be absorbed through the walls of the small intestine into the bloodstream (4). The destruction of villi can result in malabsorption of nutrients needed for good health. Key nutrients often affected are iron, calcium and folate as they are absorbed in the first part of the small intestine. If damage occurs further down the small intestinal tract, malabsorption of carbohydrates (especially lactose), fat and fat-soluble vitamins, protein and other nutrients may also occur (2,5).

In addition to the gastrointestinal system, CD affects many other systems in the body, resulting in a wide range and severity of symptoms. Symptoms of CD may include chronic diarrhea, vomiting, constipation, pale foul-smelling fatty stools and weight loss. Failure to thrive may occur in infants and children. The vitamin and mineral deficiencies that can occur from continued exposure to gluten may result in conditions such as anemia, osteoporosis and neurological disorders such as ataxia, seizures and neuropathy.

Individuals with CD who continue to ingest gluten are also at increased risk for developing other autoimmune disorders (e.g., thyroid disease, type 1 diabetes, Addison's disease) and certain types of cancer, especially gastrointestinal malignancies (2).

Continued exposure to gluten increases the risk of miscarriage or having a low birth weight baby, and may result in infertility in both women and men. A delay in diagnosis for children may cause serious nutritional complications including growth failure, delayed puberty, iron-deficiency anemia, and impaired bone health. Mood swings or depression may also occur (2, 6). See Table 1 for Nutritional Implications and Symptoms.

Table 1. Nutritional Implications and Symptoms of CD
Common in Children
Digestive Symptoms-more common in infants and children, may include: • vomiting • chronic diarrhea • constipation • abdominal bloating and pain • pale, foul-smelling, or fatty stool
Other Symptoms: • delayed puberty • dental enamel abnormalities of the permanent teeth • failure to thrive (delayed growth and short stature) • weight loss • irritability
Common in Adults
Digestive Symptoms- same as above, less common in adults

Other Symptoms- adults may instead have one or more of the following:

- unexplained iron-deficiency anemia
- other vitamin and mineral deficiencies (A, D, E, K, calcium)
- lactose intolerance
- fatigue
- bone or joint pain
- arthritis
- depression or anxiety
- tingling numbness in the hands and feet
- seizures
- missed menstrual periods
- infertility (men and women) or recurrent miscarriage
- canker sores inside the mouth
- itchy skin rash- dermatititis herpetiformis
- elevated liver enzymes

Table 1. Nutritional Implications and Symptoms of CD

Sources:

Case, Shelley, Gluten-Free Diet, A Comprehensive Resource Guide, Case Nutrition Consulting Inc., 2008.

National Institute of Diabetes and Digestive and Kidney Diseases, Celiac Disease, NIH Publication No. 08-4269 September 2008.) http://digestive.niddk.nih.gov/ddiseases/pubs/celiac/#what. Accessed May 2012.

The risk for development of CD depends on genetic, immunological, and environmental factors. Recent studies suggest that the introduction of small amounts of gluten while the infant is still breast-fed may reduce the risk of CD. Both breastfeeding during the introduction of dietary gluten, and increasing the duration of breastfeeding were associated with reduced risk in the infant for the development of CD. It is not clear from studies whether breastfeeding delays the onset of symptoms or provides a permanent protection against the disease. Therefore, it is prudent to avoid both early (<4 months) and late (≥7 months) introduction of gluten and to introduce gluten gradually while the infant is still breast-fed, as this may reduce the risk of CD. (7)

The only treatment for CD is a gluten-free diet. Individuals with CD should discuss gluten-free food choices with a dietitian or physician that specializes in CD. Individuals with CD should always read food ingredient lists carefully to make sure that the food does not contain gluten. Making informed decisions in the grocery stores and when eating out is essential for the successful treatment of the disease (5, 8).

Implications for WIC Nutrition Services

Through client-centered counseling, WIC staff can assist participants with CD in making gluten-free food choices that improve quality of life and promote nutritional well-being. WIC can provide nutrition education/counseling on alternatives to gluten-containing food products as well as provide gluten-free grain selections available in the WIC food packages. Based on the needs and interests of the participant, WIC staff may (as appropriate):

- Promote breastfeeding throughout the first year of life, with exclusive breastfeeding until 4-6 months of age.
- In consultation with the guidance of a medical provider, introduce gluten-containing foods between 4 and 6 months to infants at risk of CD, including infants with a parent or sibling with CD.
- Tailor food packages to substitute or remove gluten-containing foods.
- Educate participants on meeting nutritional needs in the absence of gluten-containing foods.
- Encourage high fiber, gluten-free grain selections.
- Monitor participant's growth pattern and weight status.
- Educate participants on planning gluten-free meals and snacks for outside the home.
- Provide educational materials outlining allowed foods and foods to avoid, for example:
  - http://www.celiac.nih.gov/Default.aspx. Accessed May 2012.
  - http://www.naspghan.org/user-assets/Documents/pdf/diseaseInfo/GlutenFreeDietGuide-E.pdf. Accessed May 2012.
- Provide referrals as appropriate.

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Clinical Immunology. 2010; 126(6):S1-S58. http://www.jacionline.org/article/S0091-6749(10)01566-6/fulltext. Accessed May 2012.

Clarification

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The 2006 American Gastroenterological Association (AGA) Institute Technical Review on the Diagnosis and Management of Celiac Disease refers to CD as "a unique disorder that is both a food intolerance and autoimmune disorder" (9). According to the 2010 NIAID-Sponsored Expert Panel definition, CD is a non-IgE mediated food allergy (10). (See nutrition risk criterion #353, *Food Allergy*.) However, the Expert Panel did not include information about CD in its report but rather refers readers to existing clinical guidelines on CD, including the AGA Institute's Technical Review. (5 9,10)

355 Lactose Intolerance

Definition/Cut-off Value

Lactose intolerance is the syndrome of one or more of the following: diarrhea, abdominal pain, flatulence, and/or bloating, that occurs after lactose ingestion.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Note: Evidence of the condition may be documented by the WIC staff.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V, or VI
Infants	I
Children	III

Justification

Lactose intolerance occurs because of a deficiency in the levels of the lactase enzyme (1). Many variables determine whether a person with lactase deficiency develops symptoms. They include: the dose of lactose ingested; the residual intestinal lactase activity; the ingestion of food along with lactose; the ability of the colonic flora to ferment lactose; and, the individual sensitivity to the products of lactose fermentation (1). Some forms of lactase deficiencies may be temporary, resulting from premature birth or small bowel injuries, and will correct themselves, leaving individuals with the ability to digest lactose sufficiently (2).

Primary lactase deficiency is attributable to relative or absolute absence of lactase that develops in childhood, and is the most common cause of lactose malabsorption and lactose intolerance (2).

Secondary lactase deficiency is one that results from small bowel injury, such as acute gastroenteritis, persistent diarrhea, or other causes that injure the small intestine mucosa, and can present at any age, but is more common in infancy. Treatment of secondary lactase deficiency and lactose malabsorption attributable to an underlying condition generally do not require elimination of lactose from the diet. Once the primary problem is resolved, lactose-containing products can be consumed normally. (2)

Congenital lactase deficiency is a rare disorder that has been reported in only a few infants. Affected newborn infants present with intractable diarrhea as soon as human milk or lactose-containing formula is introduced. (2)

Developmental lactase deficiency is the relative lactase deficiency observed among pre-term infants of less than 34 weeks gestation (2). One study in preterm infants reported benefit from the use of lactase- supplemented feedings or lactose-reduced formulas (3). The use of lactose-containing formulas and human milk does not seem to have any short- or long-term deleterious effects in preterm infants (2).

Lactose is found primarily in milk, milk-based formula and other dairy products, which provide a variety of nutrients essential to the WIC population (calcium, vitamin D, protein). Lactose intolerance varies according to individuals. Some individuals may tolerate various quantities of lactose without discomfort, or tolerate it when consumed with other foods. Dairy products that are soured, or otherwise treated with bacteria that secrete lactase (e.g., Lactobacillus acidophilus), such as cheese and yogurt, are easier to digest in lactose-intolerant individuals because they contain relatively low levels of lactose. (4)

Many individuals diagnosed with lactose intolerance avoid dairy all together. Also, lactose intolerance has been shown to be associated with low bone mass and increased risk of fracture (5). Inadequate dairy intake increases the risk of metabolic syndrome, hypertension, preeclampsia, obesity and certain forms of cancer, especially colon cancer (6).

Implications for WIC Nutrition Services

It is important to assess participants individually for lactose tolerances and nutrient needs to determine the best plan of action. WIC can provide client-centered counseling to incorporate tolerated amounts of lactose-containing foods and/or other dietary sources of calcium, vitamin D and protein into participants' diets. WIC foods such as cheese, lactose-free milk, soy beverages, tofu, and calcium fortified foods (like juice) can provide these nutrients to participants with lactose intolerance. Based on the needs and interests of the participant, WIC staff can, in addition, also offer the following strategies (as appropriate):

- **Except for infants with congenital lactase deficiency**, promote exclusive breastfeeding until six months of age and continue breastfeeding through the first year. For infants with congenital lactase deficiency, treatment is removal and substitution of lactose from the diet with a commercial lactose-free formula (2).
- Tailor food packages to substitute or remove lactose-containing foods.
- Educate participants on meeting nutritional needs in the absence of lactose-containing foods.
- Educate participants on planning lactose-free/lactose-reduced meals and snacks for outings, social gatherings, school and/or work.

Any WIC participant suspected to have lactose intolerance should be referred to a health care provider for evaluation and appropriate diagnosis (7), if needed (see Clarification for additional information on diagnosing Lactose Intolerance).

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Lactose malabsorption can be diagnosed with a hydrogen breath test. The test involves having individuals ingest a standard dose of lactose after fasting. Elevated levels of breath hydrogen, which are produced by bacterial fermentation of undigested lactose in the colon, indicate the presence of lactose malabsorption (1). The hydrogen breath test is not routinely ordered, and instead, patients are frequently asked to assess symptoms while avoiding dairy products for a period of time followed by a lactose product challenge to determine if they are lactose intolerant (7). The demonstration of lactose malabsorption does not necessarily indicate that an individual will be symptomatic.

356 Hypoglycemia

Definition/Cut-off Value

Presence of hypoglycemia diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Hypoglycemia can occur as a complication of diabetes, as a condition in itself, in association with other disorders, or under certain conditions such as early pregnancy, prolonged fasting, or long periods of strenuous exercise (1).

Symptomatic hypoglycemia is a risk observed in a substantial proportion of newborns who are small for gestational age (SGA), but it is uncommon and of shorter duration in newborns who are of the appropriate size for gestational age (2).

WIC can provide nutrition management that concentrates on frequent feedings to support adequate growth for infants and children (2). WIC can also provide nutrition education to help manage hypoglycemia in women that includes consuming a balanced diet, low carbohydrate snacks and exercise (1).

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

358 Eating Disorders

Definition/Cut-off Value

Eating disorders (anorexia nervosa and bulimia), are characterized by a disturbed sense of body image and morbid fear of becoming fat. Symptoms are manifested by abnormal eating patterns including, but not limited to:

- Self-induced vomiting
- Purgative abuse
- Alternating periods of starvation
- Use of drugs such as appetite suppressants, thyroid preparations or diuretics
- Self-induced marked weight loss

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

Anorexia nervosa and bulimia are serious eating disorders that affect women in the childbearing years. These disorders result in general malnutrition and may cause life-threatening fluid and electrolyte imbalances. Women with eating disorders may begin pregnancy in a poor nutritional state. They are at risk of developing chemical and nutritional imbalances, deficiencies, or weight gain abnormalities during pregnancy if aberrant eating behaviors are not controlled. These eating disorders can seriously complicate any pregnancy since the nutritional status of the pregnant woman is an important factor in perinatal outcome.

Maternal undernutrition is associated with increased perinatal mortality and an increased risk of congenital malformation. While the majority of pregnant women studied reported a significant reduction in their eating disorder symptoms during pregnancy, a high percentage of these women regressed in the postpartum period. This regression in postpartum women is a serious concern for breastfeeding and non-breastfeeding postpartum women who are extremely preoccupied with rapid weight loss after delivery.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

359 Recent Major Surgery, Trauma, Burns

Definition/Cut-off Value

Major surgery (including C-sections), trauma or burns severe enough to compromise nutritional status. Any occurrence:

- Within the past two (≤2) months may be self reported.
- More than two (>2) months previous must have the continued need for nutritional support diagnosed by a physician or a health care provider working under the orders of a physician.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

The body's response to recent major surgery, trauma or burns may affect nutrient requirements needed for recovery and lead to malnutrition. There is a catabolic response to surgery; severe trauma or burns cause a hyper metabolic state. Injury causes alterations in glucose, protein and fat metabolism.

Metabolic and physiological responses vary according to the individual's age, previous state of health, preexisting disease, previous stress, and specific pathogens. Once individuals are discharged from a medical facility, a continued high nutrient intake may be needed to promote the completion of healing and return to optimal weight and nutrition status.

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360 Other Medical Conditions

Definition/Cut-off Value

Diseases or conditions with nutritional implications that are not included in any of the other medical conditions. The current condition, or treatment for the condition, must be severe enough to affect nutritional status. This includes, but is not limited to:

Medical Condition	
Juvenile Rheumatoid Arthritis (JRA)	Heart Disease
Lupus Erythematosus	Cystic Fibrosis
Cardio Respiratory Diseases	Persistent Asthma (moderate or severe) requiring daily medication

Presence of medical condition(s) diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Juvenile rheumatoid arthritis (JRA) is the most common pediatric rheumatic disease and most common cause of chronic arthritis among children. JRA puts individuals at risk of anorexia, weight loss, failure to grow, and protein energy malnutrition.

Lupus erythematosus is an autoimmune disorder that affects multiple organ systems. Lupus erythematosus increases the risk of infections, malaise, anorexia, and weight loss. In pregnant women, there is increased risk of spontaneous abortion and late pregnancy losses (after 28 weeks gestation).

Cardiorespiratory diseases affect normal physiological processes and can be accompanied by failure to thrive and malnutrition. Cardiorespiratory diseases put individuals at risk for growth failure and malnutrition due to low calorie intake and hypermetabolism.

Cystic fibrosis (CF), a genetic disorder of children, adolescents, and young adults characterized by widespread dysfunction of the exocrine glands, is the most common lethal hereditary disease of the Caucasian race

Many aspects of the disease of CF stress the nutritional status of the patient directly or indirectly by affecting the patient's appetite and subsequent intake. Gastrointestinal losses occur in spite of pancreatic enzyme replacement therapy. Also, catch-up growth requires additional calories. All of these factors contribute to a chronic energy deficit, which can lead to a marasmic type of malnutrition. The primary goal of nutritional therapy is to overcome this energy deficit.

Studies have shown variable intakes in the CF population, but the intakes are usually less than adequate and are associated with a less than normal growth pattern.

Asthma is a chronic inflammatory disorder of the airways, which can cause recurrent episodes of wheezing, breathlessness, chest tightness, and coughing of variable severity. Persistent asthma requires daily use of medication, preferably inhaled anti-inflammatory agents. Severe forms of asthma may require long-term use of oral corticosteroids which can result in growth suppression in children, poor bone mineralization, high weight gain, and, in pregnancy, decreased birthweight of the infant. High doses of inhaled corticosteroids can result in growth suppression in children and poor bone mineralization. Untreated asthma is also associated with poor growth and bone mineralization and, in pregnant women, adverse birth outcomes such as low birth weight, prematurity, and cerebral palsy. Repeated asthma exacerbations ("attacks") can, in the short-term, interfere with eating, and in the long-term, cause irreversible lung damage that contributes to chronic pulmonary disease. Compliance with prescribed medications is considered to be poor. Elimination of environmental factors that can trigger asthma exacerbations (such as cockroach allergen or environmental tobacco smoke) is a major component of asthma treatment. WIC can help by providing foods high in calcium and vitamin D, in educating participants to consume appropriate foods and to reduce environmental triggers, and in supporting and encouraging compliance with the therapeutic regimen prescribed by the health care provider.

Note: This criterion will usually not be applicable to infants for the medical condition of asthma. In infants, asthma-like symptoms are usually diagnosed as bronchiolitis with wheezing which is covered under Criterion #352, Infectious Diseases.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

361 Depression

Definition/Cut-off Value

Presence of clinical depression, including postpartum depression.

Presence of condition diagnosed, documented, or reported by a physician, clinical psychologist, or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See the Clarification section for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

According to the National Institute of Mental Health (NIMH), nearly 10 percent of the U.S. population ages 18 and older suffers from depression each year, with 6.7 percent suffering from major depressive disorders (1). Although depression can occur at any age, the average onset is around age 30 (1, 2). Depression occurs twice as frequently in women as in men. Depression has a variety of symptoms, but the most common are deep feelings of sadness or a marked loss of interest in pleasure or activities. Other symptoms of depression include: appetite changes resulting in unintended weight losses or gains, insomnia or oversleeping, loss of energy or increased fatigue, restlessness or irritability, feelings of worthlessness or inappropriate guilt and difficulty thinking, concentrating or making decisions (1-3). Further, depression can increase the risk for some chronic diseases such as coronary heart disease, myocardial infarction, chronic pain syndromes, premature aging, and impaired wound healing. Therefore, untreated depression has the potential to impact long term health status (4). For information about children and depression, please see the Clarification section.

Pregnancy and Depression

Depression is common during pregnancy. Between 14 and 23 percent of pregnant women will experience depressive symptoms (5, 6). Several studies have found that depression risk is highest during the last trimester of pregnancy (4). Women who experience depression during pregnancy are found to be less likely to seek prenatal care (3). They may also suffer from episodes of nausea/vomiting or initiate/increase the use of drugs, alcohol and nicotine (4). Pregnant women with depression may be at risk for preeclampsia, preterm delivery or delivery of low birth weight infants and have higher perinatal mortality rates (5, 6).

Pregnant Adolescents

In the United States, 10 percent of women become pregnant during adolescence (7). The prevalence of teen pregnancy is highest among African and Native Americans, lower socioeconomic groups, and those living in stressful family environments. The prevalence rate of depression among pregnant adolescents is between 16 and 44 percent, which is almost twice as high as among their adult counterparts and non-pregnant adolescents (7).

Adolescence is a stage of rapid metabolic, hormonal, physiological and developmental changes. Depressive symptoms are likely to emerge when the physiologic and psychological changes that occur during pregnancy are superimposed upon normal developmental change. (8)

Teens who are under stress, lack social and/or family support, experience significant loss, or who have attention, learning or conduct disorders are at greater risk for developing clinical depression (9). Depression in young people often occurs with mental disorders, substance abuse disorders, or physical illnesses, such as diabetes (10). Pregnant adolescents with depressive symptoms are more likely to delay or refuse prenatal care and have subsequent, short interval pregnancies (within 24 months), both of which have shown to result in poor pregnancy outcomes (11, 12).

Antidepressant Use in Pregnancy

Negative consequences for the newborn such as fetal growth changes and shorter gestation periods have been associated with both depression symptoms and use of antidepressant medications during pregnancy. Although rare, some studies have linked fetal malformations, cardiac defects, pulmonary hypertension and reduced birth weight to antidepressant use during pregnancy, however, more research in this area is needed. (4, 6, 13) For more information about specific drug therapies used for treating depression, please see the Clarification section (14).

A fetus exposed to antidepressants throughout pregnancy or during the last trimester may, in rare instances, experience temporary withdrawal symptoms— such as jitters or irritability — at birth (15, 16). Some health care providers may suggest tapering dosages until after birth to minimize newborn withdrawal symptoms though it is unclear whether this method can reduce harmful effects. This strategy may also be unsafe for new mothers as they enter the postpartum period — a time of increased risk of mood swings and problems with anxiety. Therefore, it is imperative that prenatal women discuss the risks and benefits of antidepressant therapy with their health care provider.

Postpartum Depression and Related Mood Disorders

Postpartum depression was historically hypothesized to be caused by low estrogen and progesterone levels immediately following birth, however, this hypothesis has been found to have limited scientific support (17). Emerging studies have found that reproductive hormones have an indirect relationship on depression because of the influence on stress hormones, immune markers or sleep quality. The incidence of postpartum depression in new mothers can range from approximately 12 to 25 percent, to up to 35 percent or more in some high-risk groups. High risk groups include: women of low income, younger age, low education level and histories of stressful life events or traumatic experiences. Some studies have higher percentage rates for depression because they include both subjects with diagnosed major depression and those with depressive symptoms, thus accounting for the wide range in rates. (4)

Postpartum depression is distinguished from "baby blues" - a common reaction following delivery - both by its duration and the debilitating effects of the indifference the mother has about herself and her children (17). "Baby blues" are characterized by mild depressive symptoms, tearfulness (often for no discernible reason), anxiety, irritableness, mood fluctuations, increased sensitivity and fatigue. The "blues" typically peak four to five days after delivery, may last hours to days and resolve by the 10th postnatal day (18).

Inflammation and Depression

Inflammation was once recognized as one of several risk factors for depression. New research has found that inflammation is not *a* risk factor—but rather it is *the* risk factor that underlies all others. This represents a shift in how inflammation contributes to depression. Emerging research has revealed that depression is associated with inflammation manifested by increased levels of proinflammatory cytokines. Common experiences of new motherhood; sleep disturbance, postpartum pain and past or current psychological trauma, act as stressors that cause proinflammatory cytokine levels to rise. This finding may explain why psychosocial, behavioral and physical risk factors increase the risk of depression (19). Additionally, inflammation levels normally rise during the last trimester of pregnancy, which may explain, as stated in the Pregnancy and Depression section above, the higher risk for experiencing depression during pregnancy (4).

Breastfeeding and Depression

Successful breastfeeding has a protective effect on maternal mental health because it attenuates stress and modulates the inflammatory response. Conversely, breastfeeding difficulties such as nipple pain can increase the risk of depression and should be addressed promptly. (19)

Implications for WIC Nutrition Services

Individuals diagnosed with depression can benefit from WIC nutrition services and supplemental foods. Through participant-centered counseling, WIC staff can, as necessary:

- Reinforce and support the treatments and therapies prescribed by the participant's health care provider.
- Make referrals to the primary health care provider and/or to other appropriate mental health and social service programs. A 2010 brief from the Urban Institute , recognized the WIC Program as a viable access point to identify and refer mothers with depressive symptoms (20). To learn more about mental health resources in your area please access the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration's website. http://store.samhsa.gov/mhlocator or http://www.samhsa.gov/prevention/.
- Provide follow-up to ensure that the woman is receiving the necessary mental health treatment.
- Encourage food choices that promote nutritional well-being (to include good sources of Omega-3's for their anti-inflammatory properties).
- Educate about the increased risk of depressive symptoms during the third trimester of pregnancy as well as the prevalence, risks and signs of postpartum depression.
- Provide adequate breastfeeding education, assessment and support (e.g., peer counseling) to women with existing depression; both prenatally and in the postpartum period.

A supplement to this criterion was developed to provide WIC State and local agencies with more information about the treatment of depression and WIC's role in providing nutrition services to women at risk of or diagnosed with depression: *Guidance for Screening and Referring Women with or At Risk for Depression*.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self- reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Depression may be present in young children; however, it is generally not diagnosed until later in life. At this time, there is no evidenced-based research to support the diagnosis of depression as a risk criterion for WIC children participants. It is important to note, however, that a child's health may be at risk if the mother has a diagnosis of depression.

Nutrition Risk Criterion #902; *Woman or Infant/Child of Primary Caregiver with Limited ability to Make Feeding Decisions or Prepare Food*, is an appropriate risk criterion assignment for an infant or child of a WIC mother diagnosed with clinical depression.

There are three major classes of antidepressants. Of the three classes listed below, the first two, Tricyclic antidepressants (TCAs) and Selective serotonin reuptake inhibitors (SSRIs) are generally viewed as safe options for pregnant and breastfeeding women. MAOIs such as Nardil (Phenelzine) and Parnate (Tranylcypromine) are always contraindicated during pregnancy and breastfeeding as reproductive safety has not been established. (20)

- **Tricyclic antidepressants (TCAs)** are the oldest, least expensive and most studied of the antidepressants with a proven track record of effectiveness and include medications such as Amitriptyline (Elavil) and Desipramine (Norpramin). Noted drawbacks are complex dosing, unpleasant side effects and risk of suicide.

- **Selective serotonin reuptake inhibitors (SSRIs)** are used most frequently in pregnant and breastfeeding mothers. Sertraline (Zoloft) and paroxetine (Paxil) are recommended first line treatments for breastfeeding women due to fewer side effects than other antidepressants and a once-a-day dosing schedule. Paroxetine (Paxil) is generally discouraged during pregnancy because it has been associated with fetal heart defects when taken during the first three months of pregnancy. Infants of mothers on these medications should be monitored for the following symptoms: sedation, agitation, irritability, poor feeding and GI distress.

- **Monoamine oxidase inhibitors (MAOIs)** work by inhibiting the enzyme monoamine oxidase to allow for more norepinephrine and serotonin to remain available in the brain. As stated above, these types of medications are **always** contraindicated during pregnancy and breastfeeding as reproductive safety has not been established. Furthermore, MAOIs have many drug and diet contraindications.

Nutrition Risk Criterion #357 *Drug-Nutrient Interactions* may be assigned, as appropriate, to women taking anitdepressants.

1/2015

362 Developmental, Sensory or Motor Disabilities Interfering with the Ability to Eat

Definition/Cut-off Value

Developmental, sensory or motor disabilities that restrict the ability to intake chew or swallow food or require tube feeding to meet nutritional needs. Disabilities include but are not limited to:

Disability	
Minimal brain function	Head trauma
Feeding problems due to a developmental disability such as pervasive development disorder (PDD) which includes autism	Brain damage
Birth injury	Other disabilities

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Infants and children with developmental disabilities are at increased risk for nutritional problems. Education, referrals, and service coordination with WIC will aid in early intervention of these disabilities. Prenatal, lactating and non-lactating women with developmental, sensory or motor disabilities may: 1) have feeding problems associated with muscle coordination involving chewing or swallowing, thus restricting or limiting the ability to consume food and increasing the potential for malnutrition; or 2) require enteral feedings to supply complete nutritional needs which may potentially increase the risk for specific nutrient deficiencies.

Pervasive Developmental Disorder (PDD) is a category of developmental disorders with autism being the most severe. Young children may initially have a diagnosis of PDD with a more specific diagnosis of autism usually occurring at 2 1/2 to 3 years of age or older.

Children with PDD have very selective eating habits that go beyond the usual "picky eating" behavior and that may become increasingly selective over time, i.e., foods they used to eat will be refused. This picky behavior can be related to the color, shape, texture or temperature of a food. Common feeding concerns include:

- Difficulty with transition to textures, especially during infancy;
- Increased sensory sensitivity; restricted intake due to color, texture, and/or temperature of foods;
- Decreased selection of foods over time;
- Difficulty accepting new foods; difficulty with administration of multivitamin/mineral supplementation and difficulty with changes in mealtime environment.

Nutrition education, referrals, and service coordination with WIC will assist the participant, parent or caregiver in making dietary changes/adaptations and finding assistance to assure she or her infant or child is consuming a nutritionally adequate diet.

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363 Pre-Diabetes

Definition/Cut-off Value

Impaired fasting glucose (IFG) and/or impaired glucose tolerance (IGT) are referred to as pre-diabetes. These conditions are characterized by hyperglycemia that does not meet the diagnostic criteria for diabetes mellitus (1). See Clarification for more information.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI

Justification

An individual who is identified as having pre-diabetes is at relatively high risk for the development of type 2 diabetes and cardiovascular disease (CVD).

The Expert Committee on the Diagnosis and Clarification of Diabetes Mellitus (2, 3) recognized a group of individuals whose glucose levels, although not meeting criteria for diabetes, are nevertheless too high to be considered normal. The blood tests used to measure plasma glucose and to diagnose pre-diabetes include a fasting plasma glucose test and a glucose tolerance test (see Clarification for more information). Individuals with a fasting plasma glucose level between 100-125 mg/dl are referred to as having impaired fasting glucose (IFG). Individuals with plasma glucose levels of 140-199 mg/dl after a 2-hour oral glucose tolerance test are referred to as having impaired glucose tolerance (IGT).

Many individuals with IGT are euglycemic and, along with those with IFG, may have normal or near normal glycosylated hemoglobin (HbA1c) levels. Often times, individuals with IGT manifest hyperglycemia only when challenged with the oral glucose load used in standardized oral glucose tolerance test.

The prevalence of IFG and IGT increases greatly between the ages of 20-49 years. In people who are > 45 years of age and overweight (BMI ≥ 25), the prevalence of IFG is 9.3%, and for IGT, it is 12.8% (4).

Screening for pre-diabetes is critically important in the prevention of type 2 diabetes. The American Diabetes Association recommends (5) that testing to detect pre-diabetes should be considered in all asymptomatic adults who are overweight (BMI ≥ 25) or obese (BMI ≥ 30) and who have one or more additional risk factors (see Table 1 in Clarification).

IFG and IGT are not clinical entities in their own right but, rather, risk factors for future diabetes as well as CVD. (Note: During pregnancy, IFG and IGT are diagnosed as gestational diabetes.) They can be observed as intermediate stages in many of the disease processes. IFG and IGT are associated with the metabolic syndrome, which includes obesity (especially abdominal or visceral obesity), dyslipidemia (the high- triglyceride and/or low HDL type), and hypertension.

Dietary recommendations include monitoring of calories, reduced carbohydrate intake and high fiber consumption. Medical nutrition therapy (MNT) aimed at producing 5-10% loss of body weight and increased exercise have been variably demonstrated to prevent or delay the development of diabetes in people with IGT. However, the potential impact of such interventions to reduce cardiovascular risk has not been examined to date (2, 3).

WIC nutrition services can support and reinforce the MNT and physical activity recommendations that participants receive from their health care providers. In addition, WIC nutritionists can play an important role in providing women with counseling to help them achieve or maintain a healthy weight after delivery.

The WIC food package provides high fiber, low fat foods emphasizing consumption of whole grains, fruits, vegetables and dairy products. This will further assist WIC families in reducing their risk for diabetes.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Hyperglycemia is identified through a fasting blood glucose or an oral glucose tolerance test (1).

Impaired fasting glucose (IFG) is defined as fasting plasma glucose (FPG) > 100 or >125 mg/dl (> 5.6 or ≥ 6.1 mmol/l), depending on study and guidelines (2).

Impaired glucose tolerance (IGT) is defined as a 75-g oral glucose tolerance test (OGTT) with 2-h plasma glucose values of 140-199 mg/dl (7.8-11.0 mmol/l).

The cumulative incidence of diabetes over 5-6 years was low (4-5%) in those individuals with normal fasting and normal 2-h OGTT values, intermediate (20-34%) in those with IFG and normal 2-h OGTT or IGT and a normal FPG, and highest (38-65%) in those with combined IFG and IGT (4).

Recommendations for testing for pre-diabetes and diabetes in asymptomatic, undiagnosed adults are listed in Table 1 below.

Table 1. Criteria and Methods for Testing for Pre-Diabetes and Diabetes in Asymptomatic Adults

1. Testing should be considered in all adults who are overweight (BMI > 25*) and have additional risk factors:
    - Physical inactivity
    - First-degree relative with diabetes
    - Members of a high-risk ethnic population (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
    - Women who delivered a baby weighing > 9 lb or were diagnosed with gestational diabetes mellitus
    - Hypertension (blood pressure > 140/90 mmHg or on therapy for hypertension)
    - HDL cholesterol level < 35 mg/dl and/or a triglyceride level > 250 mg/dl
    - Women with polycystic ovarian syndrome (PCOS)
    - IGT or IFG on previous testing
    - Other clinical conditions associated with insulin resistance (e.g., severe obesity and acanthosis nigricans)
    - History of CVD
2. In the absence of the above criteria, testing for pre-diabetes and diabetes should begin at age 45 years.
3. If results are normal, testing should be repeated at least at 3-year intervals, with consideration of more frequent testing depending on initial results and risk status.
4. To test for pre-diabetes or diabetes, either an FPG test or 2-hour oral glucose tolerance (OGTT; 75- g glucose load), or both, is appropriate.
5. An OGTT may be considered in patients with impaired fasting glucose (IFG) to better define the risk of diabetes.
6. In those identified with pre-diabetes, identify and if appropriate, treat other CVD risk factors.

*At-risk BMI may be lower in some ethnic groups.

371 Maternal Smoking

Definition/Cut-off Value

Any smoking of tobacco products, i.e., cigarettes, pipes, or cigars

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Postpartum Women	III, IV, V, VI, VII

Justification

Research has shown that smoking during pregnancy causes health problems and other adverse consequences for the mother, the unborn fetus and the newborn infant such as: pregnancy complications, premature birth, low-birth-weight, stillbirth, infant death, and risk for Sudden Infant Death Syndrome (SIDS) (1). Women who smoke are at risk for chronic and degenerative diseases such as: cancer, cardiovascular disease and chronic obstructive pulmonary disease. They are also at risk for other physiological effects such as loss of bone density (2).

Maternal smoking exposes the infant to nicotine and other compounds, including cyanide and carbon monoxide, in-utero and via breast milk (3). In-utero exposure to maternal smoking is associated with reduced lung function among infants (4). In addition, maternal smoking exposes infants and children to environmental tobacco smoke (ETS). (See #904, Environmental Tobacco Smoke).

Because smoking increases oxidative stress and metabolic turnover of vitamin C, the requirement for this vitamin is higher for women who smoke (5). The WIC food package provides a good source of vitamin C. Women who participate in WIC may also benefit from counseling and referral to smoking cessation programs.

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372 Alcohol and Illegal Drug Use

Definition/Cut-off Value

For Pregnant Women:

- 372A - Any current alcohol use
- 372B - Any current illegal drug use

For Breastfeeding and Non-Breastfeeding Postpartum Women:

- 372A – Alcohol Use:
  - Routine current use of ≥ 2 drinks per day (6). A serving or standard sized drink is: 1 can of beer (12 fluid oz.); 5 oz. Wine; and 1 ½ fluid ounces liquor (1 jigger gin, rum, vodka, whiskey (86-proof), vermouth, cordials or liqueurs); or
  - Binge Drinking, i.e., drinks 5 or more (≥ 5) drinks on the same occasion on at least one day in the past 30 days; or
  - Heavy Drinking, i.e., drinks 5 or more (≥ 5) drinks on the same occasion on five or more days in the previous 30 days; or
- 372B - Any current illegal drug use

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women*	I
Non-Breastfeeding Women	III, IV, V or VI
**Breastfeeding is contraindicated for women with these conditions.*	

Justification

Drinking alcoholic beverages during pregnancy can damage the developing fetus. Excessive alcohol consumption may result in low birth weight, reduced growth rate, birth defects, and mental retardation. WIC can provide supplemental foods, nutrition education and referral to medical and social services which can monitor and provide assistance to the family.

"Fetal Alcohol Syndrome" is a name given to a condition sometimes seen in children of mothers who drank heavily during pregnancy. The child has a specific pattern of physical, mental, and behavioral abnormalities. Since there is no cure, prevention is the only answer.

The exact amount of alcoholic beverages pregnant women may drink without risk to the developing fetus is not known as well as the risk from periodic bouts of moderate or heavy drinking. Alcohol has the potential to damage the fetus at every stage of the pregnancy. Therefore, the recommendation is not to drink any alcoholic beverages during pregnancy.

Studies show that the more alcoholic beverages the mother drinks, the greater the risks are for her baby. In addition, studies indicate that factors such as cigarette smoking and poor dietary practices may also be involved.

Studies show that the reduction of heavy drinking during pregnancy has benefits for both mother and newborns. Pregnancy is a special time in a woman's life and the majority of heavy drinkers will respond to supportive counseling.

Heavy drinkers, themselves, may develop nutritional deficiencies and more serious diseases, such as cirrhosis of the liver and certain types of cancer, particularly if they also smoke cigarettes. WIC can provide education and referral to medical and social services, including addiction treatment, which can help improve pregnancy outcome.

Pregnant women who smoke marijuana are frequently at higher risk of still birth, miscarriage, low birth weight babies and fetal abnormalities, especially of the nervous system. Heavy cocaine use has been associated with higher rates of miscarriage, premature onset of labor, IUGR, congenital anomalies, and developmental/behavioral abnormalities in the preschool years. Infants born to cocaine users often exhibit symptoms of cocaine intoxication at birth. Infants of women addicted to heroin, methadone, or other narcotics are more likely to be stillborn or to have low birth weights. These babies frequently must go through withdrawal soon after birth. Increased rates of congenital defects, growth retardation, and preterm delivery, have been observed in infants of women addicted to amphetamines.

Pregnant addicts often forget their own health care, adding to their unborn babies' risk. One study found that substance abusing women had lower hematocrit levels at the time of prenatal care registration, lower pregravid weights and gained less weight during the pregnancy. Since nutritional deficiencies can be expected among drug abusers, diet counseling and other efforts to improve food intake are recommended.

Heroin and cocaine are known to appear in human milk. Marijuana also appears in a poorly absorbed form but in quantities sufficient to cause lethargy, and decreased feeding after prolonged exposure.

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12/2013

381 Oral Health Conditions

Definition/Cut-off Value

Oral health conditions include, but are not limited to:

- Dental caries, often referred to as "cavities" or "tooth decay", is a common chronic, infectious, transmissible disease resulting from tooth-adherent specific bacteria, that metabolize sugars to produce acid which, over time, demineralizes tooth structure (1).
- Periodontal diseases are infections that affect the tissues and bone that support the teeth. Periodontal diseases are classified according to the severity of the disease. The two major stages are gingivitis and periodontitis. Gingivitis is a milder and reversible form of periodontal disease that only affects the gums. Gingivitis may lead to more serious, destructive forms of periodontal disease called periodontitis.(2)

  More information on types of periodontal disease is available at: http://www.perio.org/consumer/2a.html.
- Tooth loss, ineffectively replaced teeth or oral infections which impair the ability to ingest food in adequate quantity or quality

Presence of oral health conditions diagnosed, documented, or reported by a physician, dentist, or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Note: Evidence of the condition may be documented by the WIC staff.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Oral health reflects and influences general health and well being. Good oral health care and nutrition during pregnancy, infancy and childhood are often overlooked factors in the growth and development of the teeth and oral cavity.

Infants and Children

The Centers for Disease Control and Prevention (CDC) reports that dental caries may be the most prevalent infectious disease in U.S. children. More than 40% of children have tooth decay by the time they reach kindergarten. Infants that consume sugary foods are of low socioeconomic status, and whose mothers have a low education level, are 32 times more likely to have caries at the age of 3 years than children who do not have those risk factors. Despite its high prevalence, early childhood caries (ECC) is a preventable disease. (3)

ECC may develop as soon as teeth erupt. Bacteria, predominantly mutans streptococci (MS), metabolize simple sugars to produce acid that demineralizes teeth, resulting in cavities. The exact age at which MS colonization occurs in children is controversial, but it does not happen until teeth erupt. The earlier colonization occurs, the greater the risk of caries. MS typically originates in the mother and is transmitted to the child via saliva (often through cup and utensil sharing). Elevated maternal levels of MS, due to active or untreated caries and frequent sugar consumption, increase the risk of transmission. In addition, recent evidence suggests that exposure to environmental tobacco smoke increases the likelihood of MS colonization in children. (4)

Historically, ECC has been attributed to inappropriate and prolonged bottle use; formally called "baby bottle tooth decay." However, recent studies indicate that the disease is multifactorial, which suggests any feeding practice that allows frequent sugar consumption in the presence of MS may result in caries formation: propped bottles containing sweetened liquids or formula, frequent consumption of juice or sweetened liquids from infant and "sippy" cups, and frequent snacking of high cariogenic foods. (4)

The frequency of sugar consumption is the main dietary variable in caries etiology. After bacteria metabolize sugar into acid, it takes 20-40 minutes for the acid to be neutralized or washed away by saliva. Therefore, if sugars are frequently consumed, the potential for demineralization is greater. Although MS can metabolize many different carbohydrates, they produce acid most efficiently from sugars, especially sucrose. Sugars within the cellular structure of food (such as fructose in whole fruit) are thought to be less cariogenic than sugars intentionally added to foods. (4) See Table 1 for more information on the cariogenic potential of children's foods and snacks.

Milk is widely consumed, especially by children, and thus the interaction between different kinds of milk consumed and caries development has been a research topic of interest. Lactose is one of the least cariogenic sugars because it is poorly metabolized by MS. Researchers have reported cows' milk to be a protective, anticariogenic agent due to its high concentration of calcium and phosphate. The buffering activity of proteins present in cows' milk also might allow the formation of very stable complexes of calcium phosphate. Other anticariogenic properties in cows' milk include antibacterial enzymes, vitamin D and fluoride. (4,5)

Infant formulas, on the other hand, have a high potential for inducing caries due to their high carbohydrate variability. The cariogenic potential of human milk is inconclusive. Human milk has been found to contain more lactose (8.3%) than cows' milk (4.9%). A higher human milk lactose concentration and the possibility that lactose fermentation of cows' milk is slower than in human milk, may make human milk caries risk slightly higher. Some evidence indicates that breastfeeding for over 1 year during the night after tooth eruption might be associated with ECC, however other investigations showed no relationship between prevalence of caries and breastfeeding. Regardless of the type of milk consumed, sufficient dental care and cleaning after drinking milk/formula and breastfeeding can help prevent ECC. Avoiding inappropriate dietary practices, such as frequent juice consumption or snacking on highly cariogenic foods also remain important ECC preventive practices. (4,5)

Table 1. Cariogenic Potential of Children's Foods and Snacks

Noncariogenic	Low Cariogenicity	High Cariogenicity
Cheese	Flavored Milk	Breakfast Bars
Chicken	Fresh fruits	Cake
Cottage Cheese	Whole grain products	Candies**
Eggs		Cookies
Flavored Club Soda		Doughnuts
Nuts and seeds*		Granola bars
Plain Cow's Milk (unflavored)		Pretzels
Plain Yogurt		Raisins and other dried fruits
Popcorn*		Soda crackers
Seltzer		Sweetened beverages (including fruit juice)
Vegetables		Sweetened dry cereals

*Not appropriate for infants and toddlers due to potential choking problems.

**Sticky candy and/or slowly eaten candy are extremely cariogenic.

Adapted from: Faine, MP. Nutrition and oral health. In: Proceedings of Promoting Oral Health of Children with Neurodevelopmental Disabilities and Other Special Health Care Needs. May 4-5, 2001. Seattle, WA.

Women

Maternal periodontal disease and dental caries may impact pregnancy outcome, and the offspring's risk of developing early and severe dental caries. Periodontal disease and caries may also increase the women's risk of atherosclerosis, rheumatoid arthritis and diabetes. These oral health problems are highly prevalent in women of childbearing age, particularly among low-income women and members of racial and ethnic minority groups. Socioeconomic factors, lack of resources to pay for care, barriers to access care, lack of public understanding of the importance of oral health and effective self-care practices all represent underlying reasons cited for observed inadequacies in oral health. (6)

Maternal periodontal disease, a chronic infection of the gingiva (gums) and supporting tooth structures, has been associated with preterm birth, low birthweight and development of preeclampsia (6, 7). Studies indicate that periodontal infection can result in placental-fetal exposure and, when coupled with a fetal inflammatory response, can lead to preterm delivery (7). Additionally, in a cohort of 164 young, minority, pregnant and postpartum women, the preterm/low birthweight rate was 5.4% lower among women who received periodontal treatment than those who did not receive treatment (7). In a case-control study, researchers found that preeclamptic patients were 3.5 times more likely to have periodontal disease than normotensive patients (6). (See nutrition risk criterion #304 *History of Preeclampsia* for more information.)

Fluoride and Fluorosis

Use of fluorides for the prevention and control of caries is documented to be both safe and highly effective. Fluoride, a naturally occurring substance, has several caries-protective mechanisms of action, including enamel remineralization and altering bacterial metabolism to help prevent caries. Excessive intake of fluoride can cause dental fluorosis which is a change in the appearance of the tooth's enamel. In the U.S., fluorosis appears mostly in the very mild or mild form - as barely visible lacy white markings or spots. The severe form of dental fluorosis, staining and pitting of the tooth surface, is rare in the U.S. The CDC reports that 32% of American children have some form of dental fluorosis, with 2.45% of children having the moderate to severe stages. (8, 9, 10, 11)

Parents and caregivers may have questions and concerns about fluoride content in water supplies and in infant formula. Fluoridated water can be found in communities that supplement tap water with fluoride and it may also be found in well water. The CDC's *My Water's Fluoride* website: http://apps.nccd.cdc.gov/MWF/Index.asp, allows consumers in currently participating States to learn the fluoridation status of their water system.

All formula, including powdered, concentrate and ready-to-feed, contain fluoride, but most infant formula manufacturers ensure low levels of fluoride (8). WIC State and local agencies should refer caregivers of formula fed infants with questions regarding the use of fluoridated vs. non-fluoridated water to prepare infant formula to the infants' health care provider.

Dental Care and Anxiety

It is reported that 50% of the U.S. population does not seek regular dental care. Of the entire U.S. population, 8-15% has dental phobias. Dental fear can be directly learned from previous painful or negative experiences or indirectly learned from family, friends and the media. Negative portrayal of dentistry by these sources adds to an individual's anxiety. Anxiety and/or fear of dental procedures may prevent participants from seeking necessary dental care during high risk periods of the life cycle (e.g., pregnancy). Dental providers are learning to understand the causes of dental fear, have techniques to assess the level of fear and have modified treatments to accommodate patients with high anxiety levels. (12)

Oral Health Problems and Special Health Care Needs

The following special health care needs can increase the risk for oral health problems and can also make the overall effects of poor oral health more severe (13):

- **Prematurity and intrauterine malnutrition**- can have adverse effects on an individual's oral health. A study of infants who weighed <2000g at birth indicated more porous dental enamel and subsurface lesions.

Infants with very low birthweights (<1500g) are more apt to have enameldefects of the primary teeth. Malnutrition in the first few months of life (when oral structures develop) can increase the risk for oral problems.

- **Gastroesophageal Reflux Disease (GERD)-** common among children with cerebral palsy, Down syndrome and other conditions. GERD can contribute to oral health problems. As acidic gastric contents are regurgitated, primary and permanent teeth can be eroded.
- **Failure to thrive and other problems with weight gain and growth-** frequent meals and snacks (which may contribute to caries development) may be needed to maintain an adequate energy intake, or if mealtime is longer than usual, the demineralization period may exceed remineralization. Delayed weaning and children sipping on a bottle throughout the day, could also contribute to oral health problems.
- **Craniofacial malformations–** individuals with these malformations are at higher risk of developing oral problems. For example, children with cleft lip/palate disorders have more decayed, missing, and filled teeth than children without.
- **Compromised immune function**- individuals with AIDS or those who take immunosuppressive medications are more susceptible to oral infections such as candidiasis, viral infections, dental caries, and periodontal disease.
- **Down syndrome (Trisomy 21)-** individuals with Down syndrome often have delayed dental development*, may be missing permanent teeth, and may have under-developed teeth or teeth with thin enamel. In addition, the potential for eating problems and GERD make oral care for individuals with Down's especially important. (13)

*Delayed Tooth Eruption (DTE) is the emergence of a tooth into the oral cavity at a time that deviates significantly from norms established for different races, ethnicities, and sexes. Variation in the normal eruption of teeth is a common finding, but significant deviations from established norms should alert the clinician to further investigate the patient's health and development. Eruption depends on genetics, growth of the jaw, muscular action and other factors. DTE is seen in children with certain genetic disorders, particularly Down syndrome, and in children with general developmental delays that involve the oral musculature. Whenever DTE is generalized, the child should be examined for systemic diseases affecting eruption, such as endocrine disorders, organ failures, metabolic disorders, drugs and inherited disorders. (14) Additional information about tooth eruption is available at: http://www.ada.org/2930.aspx.

Dentate Status, Diet Quality and General Health

By the time individuals reach adulthood, the human mouth has progressed from 20 primary teeth to 32 permanent (adult) teeth (2). The extent to which tooth loss can adversely affect nutritional status is not completely known. However, diet quality tends to decline as the degree of dental impairment increases. Studies have shown that intake of vitamin A, fiber, calcium and other key nutrients decline as the number of teeth decline. In The Health Professionals study, participants without teeth had diets that contained fewer vegetables, less carotene and fiber, and more cholesterol, saturated fat, and calories than persons with 25 teeth or more (15). Despite the trend toward increased tooth retention throughout adult life in developed countries, 11% of adults aged 25 and older have lost all of their natural teeth. This number increases to 30% for people over age 65 and is even higher in those living in poverty. Loss of teeth is not a normal result of the aging process; the major cause of tooth loss is extractions resulting from dental caries and/or periodontal disease. (15)

Implications for WIC Nutrition Services

To help prevent oral health problems from developing and ensure the best possible health and developmental outcomes, WIC staff can encourage participants and caregivers to:

Diet

- Breastfeed infants during the first year of life and beyond as mutually desired.
- Avoid having an infant/child sleep with a bottle. Any bottle taken to bed should contain only water. (See Risks 425.3 and 411.2)
- Gradually introduce a cup between 6 and 12 months of age, wean from the bottle by 12 months of age.
- Drink/provide only water and milk between meals.
- Limit sugary foods and drinks (if sweets are eaten, it's best to restrict to mealtimes.)
- Avoid carbonated beverages and juice drinks. (See Risk 425.2)
- Limit the intake of 100% fruit juice to no more than 4-6 ounces per day.
- Establish eating patterns that are consistent with the Dietary Guidelines for Americans and the infant feeding practice guidelines of the American Academy of Pediatrics.
- Consume/provide a varied, balanced diet during gestation and throughout childhood to set the stage for optimal oral health. (1,3,4,15)

Oral Hygiene

- Wipe the gums of even a very small infant with a soft washcloth or soft toothbrush, even prior to tooth eruption, to establish a daily oral hygiene routine (17, 18).
- Brush teeth (including an infant's, as soon as teeth erupt) thoroughly twice daily (morning and evening) and floss at least once every day.
- Minimize saliva sharing activities (i.e., sharing a drinking cup and utensils). (1,3,4,15)

Fluoride

- Use fluoride toothpaste approved by the American Dental Association ("pea-size" for 2-5 year olds and, "smear" for under the age of two and at moderate or high caries risk). (1)
- Rinse every night with an alcohol-free over-the- counter mouth rinse with 0.05% sodium fluoride (guidance for woman participant and caregiver only). (3)
- Contact the infant's (if formula fed) health care provider with questions regarding the use of local drinking water or bottled water to prepare infant formula. (3)
- Talk to the dentist about fluoride supplements. These may be of benefit in reducing dental decay for children living in fluoride-deficient areas (See Risk 411.11).
- Check if the public water systems have added fluoride at: http://apps.nccd.cdc.gov/MWF/Index.asp.
- Access the following website for more information about fluoride: http://www.cdc.gov/fluoridation/safety.htm

Referrals

- Establish a dental home within 6 months of eruption of the first tooth and no later than 12 months of age. (3)
- See a dentist for examinations (every 6 months) and/or restoration of all active decay as soon as possible. (WIC staff should provide dental referrals as necessary.)

Oral Health Resources/Handouts

- Summary of Pediatric Oral Health Anticipatory Guidance: http://www.aafp.org/afp/2004/1201/p2113.html#afp20041201p2113-t2.
- Table: Oral health and dietary management for mothers and children (see page 3 of pdf.) http://www.sciencedirect.com/science/article/pii/S0002822398000443.
- Oral Health Care During Pregnancy: A National Consensus Statement: http://www.mchoralhealth.org/materials/consensus_statement.html.
- *Your Baby's Teeth:* http://www.aafp.org/afp/2004/1201/p2121.html.
- *Two Healthy Smiles: Tips to Keep You and Your Baby Healthy:* http://www.mchoralhealth.org/PDFs/pregnancybrochure.pdf.
- *Tips for Good Oral Health Care During Pregnancy:* http://www.mchoralhealth.org/PDFs/OralHealthPregnancyHandout.pdf.
- *A Healthy Smile for Your Baby* (English): http://www.mchoralhealth.org/PDFs/babybrochure.pdf.
- *A Healthy Smile for Your Baby* (Spanish): http://www.mchoralhealth.org/PDFs/babybrochure_sp.pdf.

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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

382 Fetal Alcohol Syndrome

Definition/Cut-off Value

Fetal Alcohol Syndrome (FAS) is based on the presence of retarded growth, a pattern of facial abnormalities, and abnormalities of the central nervous system, including mental retardation.

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Infants	I
Children	III

Justification

FAS is a combination of permanent, irreversible birth defects attributable solely to alcohol consumption by the mother during pregnancy. There is no known cure; it can only be prevented. Symptoms of FAS may include failure to thrive, a pattern of poor growth throughout childhood and poor ability to suck (for infants). Babies with FAS are often irritable and have difficulty feeding and sleeping.

Lower levels of alcohol use may produce Fetal Alcohol Effects (FAE) or Alcohol Related Birth Defects (ARBD) that can include mental deficit, behavioral problems, and milder abnormal physiological manifestations. FAE and ARBD are generally less severe than FAS and their effects are widely variable. Therefore, FAE and ARBD in and of themselves are not considered risks, whereas the risk of FAS is unquestionable.

Identification of FAS is an opportunity to anticipate and act upon the nutritional and educational needs of the child. WIC can provide nutritional foods to help counter the continuing poor growth and undifferentiated malabsorption that appears to be present with FAS. WIC can help caregivers acknowledge that children with FAS often grow steadily but slower than their peers. WIC can also educate the caregiver on feeding, increased calorie needs and maintaining optimal nutritional status of the child.

Alcohol abuse is highly concentrated in some families. Drinking, particularly abusive drinking, is often found in families that suffer from a multitude of other social problems. A substantial number of FAS children come from families, either immediate or extended, where alcohol abuse is common, even normative. This frequently results in changes of caregivers or foster placements. New caregivers need to be educated on the special and continuing nutritional needs of the child.

The physical, social, and psychological stresses and the birth of a new baby, particularly one with special needs, places an extra burden upon the recovering woman. This puts the child at risk for poor nutrition and neglect (e.g., the caregiver may forget to prepare food or be unable to adequately provide all the foods necessary for the optimal growth and development of the infant or child.). WIC can provide supplemental foods, nutrition education and referral to medical and social services which can monitor and provide assistance to the family.

References

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2. Jones, K.L., Smith, D.W., Ulleland, C.N., and Streissguth, A.P.: Pattern of Malformation in Offspring of Chronic Alcoholic Mothers. Lancet; June 9, 1973; 815:1267-1271.
3. Masis B., M.D., May, A: A Comprehensive Local Program for the Prevention of Fetal Alcohol Syndrome, Public Health Reports; September-October 1991; 106: 5; pp. 484-489.
4. Lujan, C.C., BeBruyn, L., May, P.A., and Bird, M.E.: Profile of Abuse and Neglected Indian Children in the Southwest; Child Abuse Negligent; 1989; 34: 449-461.
5. Institute of Medicine: Fetal Alcohol Syndrome, Diagnosis, Epidemiology, Prevention and Treatment; 1996.
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Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

12/2013

401 Failure to Meet Dietary guidelines for Americans

Definition/Cut-off Value

Women and children two years of age and older who meet the eligibility requirements of income, categorical, and residency status may be presumed to be at nutrition risk based on *failure to meet Dietary Guidelines for Americans [Dietary Guidelines]* (1). For this criterion, *failure to meet Dietary Guidelines* is defined as consuming fewer than the recommended number of servings from one or more of the basic food groups (grains, fruits, vegetables, milk products, and meat or beans) based on an individual's estimated energy needs.

This risk may be assigned only to individuals (2 years and older) for whom a complete nutrition assessment (to include an assessment for risk #425, Inappropriate Nutrition Practices for Children, or #427, Inappropriate Nutrition Practices for Women) has been performed and for whom no other risk(s) are identified.

Participant Category and Priority Level

Category	Priority
Pregnant Women	IV
Breastfeeding Women	IV
Non-Breastfeeding Women	VI
Children ≥ 2 years of age	V

Justification

The 1996 Institute of Medicine (IOM) report, *WIC Nutrition Risk Criteria: A Scientific Assessment* (2) raised questions about the quality of traditional dietary assessment methods (e.g., 24-hour recall and food frequency questionnaires) and recommended further research in the development and validation of diet assessment methodologies. In response to the 1996 IOM report, the Food and Nutrition Service (FNS) commissioned the IOM to review the use of various dietary assessment tools and to make recommendations for assessing inadequate diet or inappropriate dietary patterns, especially in the category of *failure to meet Dietary Guidelines* (3). The review resulted in the publication of the 2002 IOM report, Dietary *Risk Assessment in the WIC Program* (4). The report contains a recommendation (paraphrased in the definition above) and five key findings. The findings of the IOM committee related to dietary risk and a summary of the evidence that supports its recommendation are provided below.

IOM Committee Findings Related to Dietary Risk and Supporting Research

Note: The findings related to dietary risk and a summary of the supporting research listed below can be found in the 2002 IOM report: *Dietary Risk Assessment in the WIC Program,* on the pages indicated.

Findings:

- A dietary risk criterion that uses the WIC applicant's usual intake of the five basic Pyramid food groups as the indicator and the recommended number of servings based on energy needs as the cut-off points is consistent with *failure to meet Dietary Guidelines.* (page 130)
- Nearly all U.S. women and children usually consume fewer than the recommended number of servings specified by the Food Guide Pyramid and, therefore, would be at dietary risk based on the criterion *failure to meet Dietary Guidelines*. (page 130)
- Even research-quality dietary assessment methods are not sufficiently accurate or precise to distinguish an **individual's** eligibility status using criteria based on the Food Guide Pyramid or on nutrient intake. (page 131)

Supporting Research:

- Less than 1 percent of all women meet recommendations for all five Pyramid groups. (page 127)
- Less than 1 percent of children ages 2 to 5 years meet recommendations for all five Pyramid groups. (page 127)
- The percentage of women consuming fruit during 3 days of intake increases with increasing income level. (page 127)
- Members of low-income households are less likely to meet recommendations than are more affluent households. (page 127)
- Food-insecure mothers are less likely to meet recommendations for fruit and vegetable intake than are food-secure mothers. (page 127)
- The percentage of children meeting recommendations for fat and saturated fat as a percentage of food energy increases with increasing income level. (page 127)
- Low-income individuals and African Americans have lower mean Healthy Eating Index scores than do other income and racial/ethnic groups. (page 127)
- 24-hour diet recalls and food records are not good measures of an individual's usual intake unless a number of independent days are observed. (page 61)
- On average, 24-hour diet recalls and food records tend to underestimate usual intake–energy intake in particular. (page 61)
- Food Frequency Questionnaires and diet histories tend to overestimate mean energy intakes. (page 61)

IOM Committee Concluding Remark

"In summary, evidence exists to conclude that nearly all low-income women in the childbearing years and children ages 2 to 5 years are at dietary risk, are vulnerable to nutrition insults, and may benefit from WIC's services. Further, due to the complex nature of dietary patterns, it is unlikely that a tool will be developed to fulfill its intended purpose with WIC: to classify individuals accurately with respect to their true dietary risk. Thus, any tools adopted would result in misclassification of the eligibility status of some, potentially many, individuals. By presuming that all who meet the categorical and income eligibility requirements are at dietary risk, WIC retains its potential for preventing and correcting nutrition-related problems while avoiding serious misclassification errors that could lead to denial of services to eligible individuals." (page 135)

References

1. United States Department of Agriculture and the United States Department of Health and Human Services. Dietary Guidelines for Americans, 6th Edition, 2005. Available from: www.usda.gov/cnpp.

2. Institute of Medicine (IOM); Committee on Scientific Evaluation of WIC Nutrition Risk Criteria. WIC nutrition risk criteria: A scientific assessment. Washington, DC: National Academy Press; 1996.

3. United States Department of Agriculture and the United States Department of Health and Human Services. Dietary Guidelines for Americans, 5th Edition, 2000. Available from: www.usda.gov/cnpp.

4. Institute of Medicine (IOM); Committee on Dietary Risk Assessment in the WIC Program. Dietary risk assessment in the WIC program. Washington, DC: National Academy Press; 2002.

Clarification

The recommendation and findings of the IOM Committee were developed using the 2000 Dietary Guidelines as the standard for a healthy diet. Subsequent to the 2002 IOM report, the Dietary Guidelines have been updated with the release of the 2005 Dietary Guidelines. Although the 2005 edition of the Dietary Guidelines is different from the 2000 edition, there is no evidence to suggest that the 2002 IOM recommendation and findings are invalid or inaccurate. The fact remains that diet assessment methodologies are insufficiently accurate to determine an individual's eligibility status. In addition, future research will be necessary to determine if there is a change in the IOM finding that nearly all Americans fail to consume the number of servings from the basic food groups as recommended in the Dietary Guidelines.

411 Inappropriate Nutrition Practices for Infants

Definition/Cut-off Value

Routine use of feeding practices that may result in impaired nutrient status, disease, or health problems. These practices, with examples, are outlined below. Refer to "Attachment to 411-Justification and References" for this criterion.

Participant Category and Priority Level

Category	Priority
Infants	IV

Inappropriate Nutrition Practices for Infants	Examples of Inappropriate Nutrition Practices (including but not limited to)
411.A Routinely using a substitute(s) for human milk or for FDA approved iron-fortified formula as the primary nutrient source during the first year of life	Examples of substitutes: • Low iron formula without iron supplementation; • Cow's milk, goat's milk, or sheep's milk (whole, reduced fat, low-fat, skim), canned evaporated or sweetened condensed milk; and • Imitation or substitute milks (such as rice- or soy-based beverages, non-dairy creamer), or other "homemade concoctions."

Inappropriate Nutrition Practices for Infants	Examples of Inappropriate Nutrition Practices (including but not limited to)
411.B Routinely using nursing bottles or cups improperly.	• Using a bottle to feed fruit juice. • Feeding any sugar-containing fluids, such as soda/soft drinks, gelatin water, corn syrup solutions, and sweetened tea. • Allowing the infant to fall asleep or be put to bed with a bottle at naps or bedtime. • Allowing the infant to use the bottle without restriction (e.g., walking around with a bottle) or as a pacifier. • Propping the bottle when feeding. • Allowing an infant to carry around and drink throughout the day from a covered or training cup. • Adding any food (cereal or other solid foods) to the infant's bottle.
411.C Routinely offering complementary foods* or other substances that are inappropriate in type or timing. *Complementary foods are any foods or beverages other than human milk or infant formula.	Examples of inappropriate complementary foods: • Adding sweet agents such as sugar, honey, or syrups to any beverage (including water) or prepared food, or used on a pacifier; and • Introducing any food other than human milk or iron-fortified infant formula before 4 months of age.

Inappropriate Nutrition Practices for Infants	Examples of Inappropriate Nutrition Practices (including but not limited to)
411.D Routinely using feeding practices that disregard the developmental needs or stage of the infant.	• Inability to recognize, insensitivity to, or disregarding the infant's cues for hunger and satiety (e.g., forcing an infant to eat a certain type and/or amount of food or beverage or ignoring an infant's hunger cues). • Feeding foods of inappropriate consistency, size, or shape that put infants at risk of choking. • Not supporting an infant's need for growing independence with self-feeding (e.g., solely spoon-feeding an infant who is able and ready to finger-feed and/or try self-feeding with appropriate utensils). • Feeding an infant food with inappropriate textures based on his/her developmental stage (e.g., feeding primarily pureed or liquid foods when the infant is ready and capable of eating mashed, chopped or appropriate finger foods).
411.E Feeding foods to an infant that could be contaminated with harmful microorganisms or toxins.	Examples of potentially harmful foods: • Unpasteurized fruit or vegetable juice; • Unpasteurized dairy products or soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese; • Honey (added to liquids or solid foods, used in cooking, as part of processed foods, on a pacifier, etc.); • Raw or undercooked meat, fish, poultry, or eggs; • Raw vegetable sprouts (alfalfa, clover, bean, and radish); and • Deli meats, hot dogs, and processed meats (avoid unless heated until steaming hot).
411.F Routinely feeding inappropriately diluted formula.	• Failure to follow manufacturer's dilution instructions (to include stretching formula for household economic reasons). • Failure to follow specific instructions accompanying a prescription.

Inappropriate Nutrition Practices for Infants	Examples of Inappropriate Nutrition Practices (including but not limited to)
411.G Routinely limiting the frequency of nursing of the exclusively breastfed infant when human milk is the sole source of nutrients.	Examples of inappropriate frequency of nursing: • Scheduled feedings instead of demand feedings; • Less than 8 feedings in 24 hours if less than 2 months of age; and • Less than 6 feedings in 24 hours if between 2 and 6 months of age.
411.H Routinely feeding a diet very low in calories and/or essential nutrients.	Examples: • Vegan diet; • Macrobiotic diet; and • Other diets very low in calories and/or essential nutrients.

Inappropriate Nutrition Practices for Infants	Examples of Inappropriate Nutrition Practices (including but not limited to)
411.I Routinely using inappropriate sanitation in preparation, handling, and storage of expressed human milk or formula.	Examples of inappropriate sanitation: • Limited or no access to a: ○ Safe water supply (documented by appropriate officials), ○ Heat source for sterilization, and/or ○ Refrigerator or freezer for storage. Failure to prepare, handle, and store bottles, storage containers or breast pumps properly; examples include: Human Milk • Thawing in a microwave • Refreezing • Adding freshly expressed unrefrigerated human milk to frozen human milk • Adding refrigerated human milk to frozen human milk in an amount that is greater than the amount of frozen human milk • Feeding thawed human milk more than 24 hours after it was thawed • Saving human milk from a used bottled for another feeding • Failure to clean breast pump per manufacturer's instruction Formula • Storing at room temperature for more than 1 hour • Failure to store prepared formula per manufacturer's instructions • Using formula in a bottle one hour after the start of a feeding • Saving formula from a used bottle for another feeding • Failure to clean baby bottle properly

Inappropriate Nutrition Practices for Infants	Examples of Inappropriate Nutrition Practices (including but not limited to)
411.J Feeding dietary supplements with potentially harmful consequences.	Examples of dietary supplements, which when fed in excess of recommended dosage, may be toxic or have harmful consequences: • Single or multi-vitamins; • Mineral supplements; and • Herbal or botanical supplements/remedies/teas.
411.K Routinely not providing dietary supplements recognized as essential by national public health policy when an infant's diet alone cannot meet nutrient requirements.	• Infants who are 6 months of age or older who are ingesting less than 0.25 mg of fluoride daily when the water supply contains less than 0.3 ppm fluoride. • Infants who are exclusively breastfed, or who are ingesting less than 1 liter (or 1 quart) per day of vitamin D-fortified formula, and are not taking a supplement of 400 IU of vitamin D.

Attachment to 411: Justification and References

Inappropriate Nutrition Practices for Infants

Justification

411.A Routinely using a substitute(s) for human milk or for FDA approved iron-fortified formula as the primary nutrient source during the first year of life.

During the first year of life, breastfeeding is the preferred method of infant feeding. The American Academy of Pediatrics (AAP) recommends human milk for the first 12 months of life because of its acknowledged benefits to infant nutrition, gastrointestinal function, host defense, and psychological well- being (1). For infants fed infant formula, iron-fortified formula is generally recommended as a substitute for breastfeeding (1- 4). Rapid growth and increased physical activity significantly increase the need for iron and utilize iron stores (1). Body stores are insufficient to meet the increased iron needs making it necessary for the infant to receive a dependable source of iron to prevent iron deficiency anemia (1). Iron deficiency anemia is associated with cognitive and psychomotor impairments that may be irreversible, and with decreased immune function, apathy, short attention span, and irritability (1, 5). Feeding of low-iron infant formula can compromise an infant's iron stores and lead to iron deficiency anemia. Cow's milk has insufficient and inappropriate amounts of nutrients and can cause occult blood loss that can lead to iron deficiency, stress on the kidneys from a high renal solute load, and allergic reactions (1, 3, 5-8). Sweetened condensed milk has an abundance of sugar that displaces other nutrients or causes over-consumption of calories (9). Homemade formulas prepared with canned evaporated milk do not contain optimal kinds and amounts of nutrients infants need (1, 5, 8, 9). Goat's milk, sheep's milk, imitation milks, and substitute milks do not contain nutrients in amounts appropriate for infants (1, 3, 5**,** 10, 11).

411.B Routinely using nursing bottles or cups improperly.

Dental caries is a major health problem in U.S. preschool children, especially in low-income populations (12). Eating and feeding habits that affect tooth decay and are started during infancy may continue into early childhood. Most implicated in this rampant disease process is prolonged use of baby bottles during the day or night, containing fermentable sugars, (e.g., fruit juice, soda, and other sweetened drinks), pacifiers dipped in sweet agents such as sugar, honey or syrups, or other high frequency sugar exposures (13). The AAP and the American Academy of Pedodontics recommend that juice should be offered to infants in a cup, not a bottle, and that infants not be put to bed with a bottle in their mouth (14, 15). While sleeping with a bottle in his or her mouth, an infant's swallowing and salivary flow decreases, thus creating a pooling of liquid around the teeth (16). The practice of allowing infants to carry or drink from a bottle or training cup of juice for periods throughout the day leads to excessive exposure of the teeth to carbohydrates, which promotes the development of dental caries (14).

Allowing infants to sleep with a nursing bottle containing fermentable carbohydrates or to use it unsupervised during waking hours provides an almost constant supply of carbohydrates and sugars (1). This leads to rapid demineralization of tooth enamel and an increase in the risk of dental caries due to prolonged contact between cariogenic bacteria on the susceptible tooth surface and the sugars in the consumed liquid (1, 17). The sugars in the liquid pool around the infant's teeth and gums feed the bacteria there and decay is the result (18). The process may start before the teeth are even fully erupted. Upper incisors (upper front teeth) are particularly vulnerable; the lower incisors are generally protected by the tongue (18). The damage begins as white lesions and progresses to brown or black discoloration typical of caries (18). When early childhood caries is severe, the decayed crowns may break off and the permanent teeth developing below may be damaged (18). Undiagnosed dental caries and other oral pain may contribute to feeding problems and failure to thrive in young children (18).

Unrestricted use of a bottle, containing fermentable carbohydrates, is a risk because the more times a child consumes solid or liquid food, the higher the caries risk (1). Cariogenic snacks eaten between meals place the toddler most at risk for caries development; this includes the habit of continually sipping from cups (or bottles) containing cariogenic liquids (juice, milk, soda, or sweetened liquid) (18). If inappropriate use of the bottle persists, the child is at risk of toothaches, costly dental treatment, loss of primary teeth, and developmental lags on eating and chewing. If this continues beyond the usual weaning period, there is a risk of decay to permanent teeth.

Propping the bottle deprives infants of vital human contact and nurturing which makes them feel secure. It can cause: ear infections because of fluid entering the middle ear and not draining properly; choking from liquid flowing into the lungs; and tooth decay from prolonged exposure to carbohydrate-containing liquids (19).

Adding solid food to a nursing bottle results in force-feeding, inappropriately increases the energy and nutrient composition of the formula, deprives the infant of experiences important in the development of feeding behavior, and could cause an infant to choke (1, 10, 20, 21).

411.C Routinely offering complementary foods or other substances that are inappropriate in type or timing.

Infants, especially those living in poverty, are at high risk for developing early childhood caries (12). Most implicated in this rampant disease process is prolonged use of baby bottles during the day or night, containing fermentable sugars, (e.g., fruit juice, soda, and other sweetened drinks), pacifiers dipped in sweet agents such as sugar, honey or syrups, or other high frequency sugar exposures (13).

Feeding solid foods too early (i.e., before 4-6 months of age) by, for example, adding diluted cereal or other solid foods to bottles deprives infants of the opportunity to learn to feed themselves (3, 10, 20, 22). The major objection to the introduction of beikost before age 4 months of age is based on the possibility that it may interfere with establishing sound eating habits and may contribute to overfeeding (5, 23). Before 4 months of age, the infant possesses an extrusion reflex that enables him/her to swallow only liquid foods (1, 12, 24). The extrusion reflex is toned down at four months (20). Breast milk or iron-fortified infant formula is all the infant needs. Gastric secretions, digestive capacity, renal capacity and enzymatic secretions are low, which makes digestion of solids inefficient and potentially harmful (5, 20, 23, 24). Furthermore, there is the potential for antigens to be developed against solid foods, due to the undigested proteins that may permeate the gut, however, the potential for developing allergic reactions may primarily be in infants with a strong family history of atopy (5, 23). If solid foods are introduced before the infant is developmentally ready, breast milk or iron-fortified formula necessary for optimum growth is displaced (1, 20, 24). Around 4 months of age, the infant is developmentally ready for solid foods when (1, 5, 20, 23, 24): the infant is better able to express certain feeding cues such as turning head to indicate satiation; oral and gross motor skills begin to develop that help the infant to take solid foods; the extrusion reflex disappears; and the infant begins to sit upright and maintain balance.

Offering juice before solid foods are introduced into the diet could risk having juice replace breast milk or infant formula in the diet (14). This can result in reduced intake of protein, fat, vitamins, and minerals such as iron, calcium, and zinc (25). It is prudent to give juice only to infants who can drink from a cup (14).

411.D Routinely using feeding practices that disregard the developmental needs or stage of the infant.

Infants held to rigid feeding schedules are often underfed or overfed. Caregivers insensitive to signs of hunger and satiety, or who over manage feeding may inappropriately restrict or encourage excessive intake. Findings show that these practices may promote negative or unpleasant associations with eating that may continue into later life, and may also contribute to obesity. Infrequent breastfeeding can result in lactation insufficiency and infant failure-to-thrive. Infants should be fed foods with a texture appropriate to their developmental level (3, 5, 10, 12, 20, 22).

411. E Feeding foods to an infant that could be contaminated with harmful microorganisms or toxins.

Only pasteurized juice is safe for infants, children, and adolescents (14). Pasteurized fruit juices are free of microorganisms (14). Unpasteurized juice may contain pathogens, such as Escherichia coli, Salmonella, and Cryptosporidium organisms (14, 26). These organisms can cause serious disease, such as hemolytic-uremic syndrome, and should never be fed to infants and children (14). Unpasteurized juice must contain a warning on the label that the product may contain harmful bacteria (14, 27). Infants or young children should not eat raw or unpasteurized milk or cheeses (1)—unpasteurized dairy products could contain harmful bacteria, such as Brucella species, that could cause young children to contract a dangerous food borne illness. The AAP also recommends that young children should not eat soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese—these foods could contain Listeria bacteria (1). Hard cheeses, processed cheeses, cream cheese, cottage cheese, and yogurt need not be avoided (1).

Honey has been implicated as the primary food source of Clostridium botulinum during infancy. These spores are extremely resistant to heat, including pasteurization, and are not destroyed by present methods of processing honey. Botulism in infancy is caused by ingestion of the spores, which germinate into the toxin in the lumen of the bowel (9, 10, 20, 28, 29).

Infants or young children should not eat raw or undercooked meat or poultry, raw fish or shellfish, including oysters, clams, mussels, and scallops (1)—these foods may contain harmful bacteria or parasites that could cause children to contract a dangerous food borne illness.

According to the AAP, to prevent food-born illness, the foods listed below should not be fed to infants or young children (1). All of the foods have been implicated in selected outbreaks of food-borne illness, including in children. Background information regarding foods that could be contaminated with harmful microorganisms is also included below:

- Raw vegetable sprouts (alfalfa, clover, bean, and radish)--Sprouts can cause potentially dangerous Salmonella and E. coli O157 infection. Sprouts grown under clean conditions in the home also present a risk because bacteria may be present in seed. Cook sprouts to significantly reduce the risk of illness (30).

- Deli meats, hot dogs, and processed meats (avoid unless heated until steaming hot) --These foods have been found to be contaminated with Listeria monocytogenes; if adequately cooked, this bacteria is destroyed.

411. F Routinely feeding inappropriately diluted formula.

Over-dilution can result in water intoxication resulting in hyponatremia; irritability; coma; inadequate nutrient intake; failure to thrive; poor growth (1, 3, 5, 10, 20, 31). Underdilution of formula increases calories, protein, and solutes presented to the kidney for excretion, and can result in hypernatremia, tetany, and obesity (3, 5, 10, 20, 31).

Dehydration and metabolic acidosis can occur with under-dilution of formula (3, 5, 10, 31). Powdered formulas vary in density so manufacturer's scoops are formula specific to assure correct dilution (5, 20). One clue for staff to identify incorrect formula preparation is to determine if the parent/caregiver is using the correct manufacturer's scoop to prepare the formula.

411. G Routinely limiting the frequency of nursing of the exclusively breastfed infant when human milk is the sole source of nutrients.

Exclusive breastfeeding provides ideal nutrition to an infant and is sufficient to support optimal growth and development in the first 6 months of life (4). Frequent breastfeeding is critical to the establishment and maintenance of an adequate milk supply for the infant (4, 32-36). Inadequate frequency of breastfeeding may lead to lactation failure in the mother and dehydration, poor weight gain, diarrhea, and vomiting, illness, and malnourishment in the infant (4, 34, 37-42). Exclusive breastfeeding protects infants from early exposure to

contaminated foods and liquids (40). In addition, infants, who receive breast milk more than infant formulas, have a lower risk of being overweight in childhood and adolescence (43, 44).

411.H Routinely feeding a diet very low in calories and/or essential nutrients.

Highly restrictive diets prevent adequate intake of nutrients, interfere with growth and development, and may lead to other adverse physiological effects (3). Infants older than 6 months are potentially at the greatest risk for overt deficiency states related to inappropriate restrictions of the diet, although deficiencies of vitamins B12 and essential fatty acids may appear earlier (1, 45, 46). Infants are particularly vulnerable during the weaning period if

fed a macrobiotic diet and may experience psychomotor delay in some instances (1, 47, 48). Well-balanced vegetarian diets with dairy products and eggs are generally associated with good health. However, strict vegan diets may be inadequate in calories, vitamin B12, vitamin D, calcium, iron, protein and essential amino acids needed for growth and development (49). The more limited the diet, the greater the health risk. Given the health and nutrition risks associated with highly restrictive diets, WIC can help the parent to assure that the infant consumes an adequate diet to optimize health during critical periods of growth as well as for the long term.

411.I Routinely using inappropriate sanitation in preparation, handling, and storage of expressed human milk or formula.

Lack of sanitation in the preparation, handling and storage of expressed human milk or formula may cause gastrointestinal infection. The water used to prepare concentrated or powdered infant formula and prepare bottles and nipples (for formula and human milk) must be safe for consumption. Water contaminated with toxic substances (such as nitrates, lead, or pesticides) poses a hazard to an infant's health and should NOT be used (9). In addition, a heat source is necessary to sterilize bottles and other items used in the storage of both human milk and formula. Adequate refrigeration (40 Degrees Fahrenheit or below) is necessary to safely store human milk and prepared formula (9).

Human Milk

Published guidelines on the handling and storage of human milk may differ among pediatric nutrition authorities (1, 9, 50-53). However, there is consensus on the following human milk feeding, handling, and storage practices that are considered inappropriate and unsafe (9, 50, 54-56):

- Thawing frozen human milk in the microwave oven
- Refreezing human milk
- Adding freshly expressed unrefrigerated human milk to already frozen milk in a storage container*
- Feeding previously frozen human milk thawed in the refrigerator that has been refrigerated for more than 24 hours
- Saving human milk from a used bottle for another use at another feeding
- Failure to clean a breast pump per manufacturer's instruction

* The appropriate and safe practice is to add chilled freshly expressed human milk, in an amount that is smaller than the milk that has been frozen for no longer than 24 hours.

As stated above, there are variations in human milk storage guidelines among recognized entities, e.g., AAP and Academy of Breastfeeding Medicine (ABM) (1, 53). The ABM guidelines have longer refrigerated storage time than AAP and are cited for several organizations (1, 53). However, the ABM guidelines are for healthy term infants, and while they may be appropriate for a large percentage of the general population, the WIC population is considered an "at risk population". Therefore, it is not possible at this time to identify a clear cut-off to determine unsafe refrigeration limits for WIC risk determination.

Another consideration when recommending length of storage time is its effect on protective properties in human milk. There is evidence that after 48 hours of refrigeration, human milk significantly loses important antibacterial and antioxidant properties (57). These properties of human milk are specifically important for the prevention of necrotizing enterocolitis, retinopathy, and bronchopulmonary dysplasia of premature infants (57). Although some properties may be reduced with longer refrigerated storage, this does not diminish the overall superiority of human milk over formula, as formula does not contain these protective properties or many of the other benefits of human milk.

Participant circumstances (e.g., adequate refrigeration, safe water, heat source) as well as health of the infant need to be considered when recommending the length of time human milk may be stored in the refrigerator. Please see the WIC Works Resource System for handling and storage recommendations: http://www.nal.usda.gov/wicworks/WIC_Learning_Online/support/job_aids/safety.pdf . These recommendations are based on the AAP's guidelines for the safe handling and storage of human milk.

If the breastfeeding mother uses a breast pump, it is essential for her to fully understand the importance of and the specific manufacturer's instructions for cleaning the breast pump. Improper cleaning of breast pumps and pump parts can increase the risk of expressed human milk contamination (56).

Formula

Formula must be properly prepared in a sanitary manner to be safe for consumption. Furthermore, prepared infant formula is a perishable food, and must be handled and stored properly in order to be safe for consumption (3, 9, 20).

Most babies who are hospitalized for vomiting and diarrhea are bottle fed. This has often been attributed to the improper handling of formula rather than sensitivities to the formula. During the manufacturing process, powdered formulas can become contaminated with harmful bacteria. In rare cases, the contaminated powdered formulas may cause infections in preterm or immune compromised infants. To reduce the risk of infection in infants it is important that formulas be carefully prepared and handled. Instructions for the sanitary preparation of formulas can be obtained from the WIC Works Resource System at: http://www.nal.usda.gov/wicworks/WIC_Learning_Online/support/job_aids/formula.pdf and from the World Health Organization at: http://www.who.int/foodsafety/publications/micro/pif_guidelines.pdf. It is generally recommended to boil the water used for infant formula preparation during the first 3 months of life (9). Caregivers should consider the safety of their water source and the health status of the infant in addition to consulting with their health care provider regarding whether to continue boiling the water when preparing infant formula for the infant older than 3 months.

Manufacturers' instructions vary, depending on the product, in the length of time it is considered safe to store prepared infant formula without refrigeration before bacterial growth accelerates to an extent that the infant is placed at risk (1, 9, 20). Published guidelines on the handling and storage of infant formula indicate that it is unsafe to use prepared formula which (1, 9):

- Has been held at room temperature longer than 1 hour or longer than recommended by the manufacturer
- Has been held in the refrigerator longer than the safe storage time indicated by the manufacturer
- Remains in a bottle one hour after the start of feeding
- Remains in a bottle from an earlier feeding
- Is fed using improperly cleaned baby bottles

411.J Feeding dietary supplements with potentially harmful consequences.

An infant consuming inappropriate or excessive amounts of single or multivitamin or mineral or herbal remedy not prescribed by a physician is at risk for a variety of adverse effects including harmful nutrient interactions, toxicity, and teratogenicity (1, 58). While some herbal teas may be safe, some have undesirable effects, particularly on infants who are fed herbal teas or who receive breast milk from mothers who have ingested herbal teas (59). Examples of teas with potentially harmful effects to children include: licorice, comfrey leaves, sassafras, senna, buckhorn bark, cinnamon, wormwood, woodruff, valerian, foxglove, pokeroot or pokeweed, periwinkle, nutmeg, catnip, hydrangea, juniper, Mormon tea, thorn apple, yohimbe bark, lobelia, oleander, Matế, kola nut or gotu cola, and chamomile (59-61). Like drugs, herbal or botanical preparations have chemical and biological activity, may

have side effects, and may interact with certain medications--these interactions can cause problems and can even be dangerous (62). Botanical supplements are not necessarily safe because the safety of a botanical depends on many things, such as its chemical makeup, how it works in the body, how it is prepared, and the dose used (62).

411.K Routinely not providing dietary supplements recognized as essential by national public health policy when an infant's diet alone cannot meet nutrient requirements.

Depending on an infant's specific needs and environmental circumstances, certain dietary supplements may be recommended by the infant's health care provider to ensure health. For example, fluoride supplements may be of benefit in reducing dental decay for children living in fluoride-deficient areas (1, 63).

To prevent rickets and vitamin D deficiency in healthy infants and children, the AAP recommends a supplement of 400 IU per day for the following (4, 64):

1. All breastfed and partially breastfed infants unless they are weaned to at least 1 liter (or 1 quart) per day of vitamin D-fortified formula.

2. All nonbreastfed infants who are ingesting less than 1 liter (or 1 quart) per day of vitamin D-fortified formula.

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425 Inappropriate Nutrition Practices for Children

Definition/Cut-off Value

Routine use of feeding practices that may result in impaired nutrient status, disease, or health problems. These practices, with examples, are outlined below. Refer to "Attachment to 425-Justification and References" for this criterion.

Participant Category and Priority Level

Category	Priority
Children	V

Inappropriate Nutrition Practices for Children	Examples of Inappropriate Nutrition Practices (including but not limited to)
425A Routinely feeding inappropriate beverages as the primary milk source.	Examples of inappropriate beverages as primary milk source: • Non-fat or reduced-fat milks between 12 and 24 months of age (unless overweight or obesity is a concern) or sweetened condensed milk; and • Goat's milk, sheep's milk, imitation or substitute milks (that are unfortified or inadequately fortified), or other "homemade concoctions."
425B Routinely feeding a child any sugar-containing fluids.	Examples of sugar-containing fluids: • Soda/soft drinks; • Gelatin water; • Corn syrup solutions; and • Sweetened tea.

Inappropriate Nutrition Practices for Children	Examples of Inappropriate Nutrition Practices (including but not limited to)

425C Routinely using nursing bottles, cups, or pacifiers improperly.	• Using a bottle to feed:
	  ○ Fruit juice, or
	  ○ Diluted cereal or other solid foods.
	• Allowing the child to fall asleep or be put to bed with a bottle at naps or bedtime.
	• Allowing the child to use the bottle without restriction (e.g., walking around with a bottle) or as a pacifier.
	• Using a bottle for feeding or drinking beyond 14 months of age.
	• Using a pacifier dipped in sweet agents such as sugar, honey, or syrups.
	• Allowing a child to carry around and drink throughout the day from a covered or training cup.

425D Routinely using feeding practices that disregard the developmental needs or stages of the child.	• Inability to recognize, insensitivity to, or disregarding the child's cues for hunger and satiety (e.g., forcing a child to eat a certain type and/or amount of food or beverage or ignoring a hungry child's requests for appropriate foods). • Feeding foods of inappropriate consistency, size, or shape that put children at risk of choking. • Not supporting a child's need for growing independence with self-feeding (e.g., solely spoon- feeding a child who is able and ready to finger-feed and/or try self-feeding with appropriate utensils). • Feeding a child food with an inappropriate texture based on his/her developmental stage (e.g., feeding primarily pureed or liquid food when the child is ready and capable of eating mashed, chopped or appropriate finger foods).

Inappropriate Nutrition Practices for Children	Examples of Inappropriate Nutrition Practices (including but not limited to)
425E Feeding foods to a child that could be contaminated with harmful microorganisms.	Examples of potentially harmful foods for a child: • Unpasteurized fruit or vegetable juice; • Unpasteurized dairy products or soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese; • Raw or undercooked meat, fish, poultry, or eggs; • Raw vegetable sprouts (alfalfa, clover, bean, and radish); • Undercooked or raw tofu; and • Deli meats, hot dogs, and processed meats (avoid unless heated until steaming hot).
425F Routinely feeding a diet very low in calories and/or essential nutrients.	Examples: • Vegan diet; • Macrobiotic diet; and • Other diets very low in calories and/or essential nutrients.
425G Feeding dietary supplements with potentially harmful consequences.	Examples of dietary supplements which when fed in excess of recommended dosage may be toxic or have harmful consequences: • Single or multi-vitamins; • Mineral supplements; and • Herbal or botanical supplements/remedies/teas.
425H Routinely not providing dietary supplements recognized as essential by national public health policy when a child's diet alone cannot meet nutrient requirements.	• Providing children under 36 months of age less than 0.25 mg of fluoride daily when the water supply contains less than 0.3 ppm fluoride. • Providing children 36-60 months of age less than 0.50 mg of fluoride daily when the water supply contains less than 0.3 ppm fluoride. • Not providing 400 IU of vitamin D if a child consumes less than 1 liter (or 1 quart) of vitamin D fortified milk or formula.

Inappropriate Nutrition Practices for Children	Examples of Inappropriate Nutrition Practices (including but not limited to)
425I Routine ingestion of non-food items (pica).	Examples of inappropriate nonfood items: • Ashes; • Carpet fibers; • Cigarettes or cigarette butts; • Clay; • Dust; • Foam rubber; • Paint chips; • Soil; and • Starch (laundry and cornstarch).

Attachment to 425: Justification and References

Inappropriate Nutrition Practices for Children

Justification

425A Routinely feeding inappropriate beverages as the primary milk source.

Goat's milk, sheep's milk, imitation and substitute milks (that are unfortified or inadequately fortified) do not contain nutrients in amounts appropriate as a primary milk source for children (1-4).

Non-fat and reduced-fat milks are not recommended for use with children from 1 to 2 years of age because of the lower calorie density compared with whole-fat products (1, 5). The low-calorie, low-fat content of these milks requires an increase in caloric intake to meet energy needs. Infants and children under two using reduced fat milks gain at a slower growth rate, lose body fat as evidenced by skinfold thickness, lose energy reserves, and are at risk of inadequate intake of essential fatty acids. Additionally, essential fatty acids are a critical component of infant and child brain development with deficits early in life leading to significantly altered brain structure and function (6-8). Similar malnourishment has been associated with negative health outcomes including, but not limited to, slower language development, poorer motor function, lower IQ, poorer school performance, and eyesight problems (9).

WIC Regulations [7 CFR 246.10(e)], however, include the option for WIC State agencies to issue reduced-fat milk and/or reduced-fat yogurt to children (1 to 2 years of age) for whom overweight or obesity is a concern, as determined by the Competent Professional Authority (CPA) (Food Package Guidance, May 2014). This option is consistent with the American Academy of Pediatrics (AAP) recommendation in the clinical report: *Lipid Screening and Cardiovascular Health in Childhood* (10). The AAP identifies parental history of obesity, lipidemia, and cardiovascular disease as determinants for a child for whom overweight or obesity is a concern. WIC State agencies that choose to authorize reduced-fat milk and/or reduced-fat yogurt for the 1 year old child must develop policy that defines the assessment criteria the CPA will use to determine if the child should be given reduced-fat dairy products. For example, a State agency may choose to use existing nutrition risk criteria: #114 *Overweight or At Risk of Overweight (Infants and Children)* and/or # 115 *High Weight-for-Length (Infants and Children <24 Months of Age)* to identify children to receive reduced-fat milk. For more information about the required State agency policy for issuing reduced- fat milk to children 12 months to 2 years of age, please see the Food and Nutrition Service, Food Package Guidance issued May 2014.

425B Routinely feeding a child any sugar-containing fluids.

Abundant epidemiologic evidence from groups who have consumed low quantities of sugar as well as from those who have consumed high quantities shows that sugar – especially sucrose – is the major dietary factor affecting the prevalence and progression of dental caries (11). Consumption of foods and beverages high in fermentable carbohydrates, such as sucrose, increases the risk of early childhood caries and tooth decay (11, 12).

425C Routinely using nursing bottles, cups, or pacifiers improperly.

Dental caries are a major health problem in U.S. preschool children, especially in low-income populations (13). Most implicated in this rampant disease process is prolonged use of baby bottles, during the day or night, containing fermentable sugars, (e.g., fruit juice, soda, and other sweetened drinks); pacifiers dipped in sweet agents such as sugar, honey or syrups; or other high frequency sugar exposures (11). Solid foods such as cereal should not be put into a bottle for feeding; this is a form of force feeding (14) and does not encourage the child to eat the cereal in a more developmentally-appropriate way.

Additional justifications for the examples include:

- The American Academy of Pediatrics (AAP) and the American Academy of Pedodontics recommend that children not be put to bed with a bottle in their mouth (15, 16). While sleeping with a bottle in his or her mouth, a child's swallowing and salivary flow decrease, resulting in a pooling of liquid around the teeth (17).

Propping the bottle can cause: ear infections because of fluid entering the middle ear and not draining properly; choking from liquid flowing into the lungs; and tooth decay from prolonged exposure to carbohydrate-containing liquids (18).

- Pediatric dentists recommend that parents be encouraged to have infants drink from a cup as they approach their first birthday, and that infants are weaned from the bottle by 12-14 months of age (19).

- The practice of allowing children to carry or drink from a bottle or cup of juice for periods throughout the day leads to excessive exposure of the teeth to carbohydrates, which promotes the development of dental caries (15). Allowing toddlers to use a bottle or cup containing fermentable carbohydrates unsupervised during waking hours provides an almost constant supply of carbohydrates and sugars (1). This leads to rapid demineralization of tooth enamel and an increase in the risk of dental caries due to prolonged contact between cariogenic bacteria on the susceptible tooth surface and the sugars in the consumed liquid (1, 19). The sugars in the liquid pool around the child's teeth and gums feed the bacteria there and result in decay (20). The process may start before the teeth are even fully erupted. Upper incisors (upper front teeth) are particularly vulnerable; the lower incisors are generally protected by the tongue (20). The damage begins as white lesions and progresses to brown or black discoloration typical of caries (20). When early childhood caries are severe, the decayed crowns may break off and the permanent teeth developing below may be damaged (20). Undiagnosed dental caries and other oral pain may contribute to feeding problems and failure to thrive in young children (20). Use of a bottle or cup, containing fermentable carbohydrates, without restriction is a risk because the more times a child consumes solid or liquid food, the higher the caries risk (1). Cariogenic snacks eaten between meals place the toddler most at risk for caries development; this includes the habit of continually sipping from cups (or bottles) containing cariogenic liquids (juice, milk, soda, or sweetened liquid) (20). If inappropriate use of the bottle persists the child is at risk of toothaches, costly dental treatment, loss of primary teeth, and developmental lags on eating and chewing. If this continues beyond the usual weaning period there is a risk of decay to permanent teeth.

425D Routinely using feeding practices that disregard the developmental needs or stage of the child.

The interactions and communication between a caregiver and child during feeding and eating influence a child's ability to progress in eating skills and consume a nutritionally adequate diet. These interactions comprise the "feeding relationship" (14). A dysfunctional feeding relationship, which could be characterized by a caregiver misinterpreting, ignoring, or overruling a young child's innate capability to regulate food intake based on hunger, appetite, and satiety can result in poor dietary intake and impaired growth (21, 22). Parents who consistently attempt to control their children's food intake may give children few opportunities to learn to control their own food intake (23). This could result in inadequate or excessive food intake, future problems with food regulation, and problems with growth and nutritional status. Instead of using approaches such as bribery, rigid control, struggles, or short-order cooking to manage eating, a healthier approach is for parents to provide nutritious, safe foods at regular meals and snacks, allowing children to decide how much, if any, they eat (1, 22). Young children should be able to eat in a matter-of-fact way sufficient quantities of the foods that are given to them, just as they take care of other daily needs (3). Research indicates that restricting access to foods (i.e., high fat foods) may enhance the interest of 3- to 5-year old children in those foods and increase their desire to obtain and consume those foods. Stringent parental controls on child eating have been found to potentiate children's preference for high-fat energy dense foods, limit children's acceptance of a variety of foods, and disrupt children's regulation of energy intake (24, 25). Forcing a child to clean his or her plate may lead to overeating or development of an aversion to certain foods (12).

The toddler and preschooler are striving to be independent (12). Self-feeding is important even though physically they may not be able to handle feeding utensils or have good eye-hand coordination (12). Children should be able to manage the feeding process independently and with dispatch, without either unnecessary dawdling or hurried eating (3, 17). Self-feeding milestones include (1): During infancy, older infants progress from semisolid foods to thicker and lumpier foods to soft pieces to finger-feeding table food (14). By 15 months, children can manage a cup, although not without some spilling. At 16 to 17 months of age, well-defined wrist rotation develops, permitting the transfer of food from the bowl to the child's mouth with less spilling. The ability to lift the elbow as the spoon is raised and to flex the wrist as the spoon reaches the mouth follows. At 18 to 24 months, they learn to tilt a cup by manipulation with the fingers. Despite these new skills, 2-year-old children often prefer using their fingers to using the spoon. Preschool children learn to eat a wider variety of textures and kinds of food (3, 12). However, the foods offered should be modified so that the child can chew and swallow the food without difficulty (3).

425E Feeding foods to a child that could be contaminated with harmful microorganisms.

According to the AAP, to prevent food-borne illness, the foods listed below should not be fed to young children or infants (1). All of the foods have been implicated in selected outbreaks of food-borne illness, including in children. Background information regarding foods that could be contaminated with harmful microorganisms is also included below:

- Unpasteurized fruit or vegetable juice – Only pasteurized juice is safe for infants, children, and adolescents (15). Pasteurized fruit juices are free of microorganisms (15). Unpasteurized juice may contain pathogens, such as Escherichia coli, Salmonella, and Cryptosporidium organisms (15, 26). These organisms can cause serious disease, such as hemolytic-uremic syndrome, and should never be fed to infants and children (15). Unpasteurized juice must contain a warning on the label that the product may contain harmful bacteria (15, 27).

- Unpasteurized dairy products or soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese – Young children or infants should not eat raw or unpasteurized milk or cheeses (1). Unpasteurized dairy products could contain harmful bacteria, such as Brucella species, that could cause young children to contract a dangerous food borne illness. The American Academy of Pediatrics also recommends that young children should not eat soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese. These foods could contain Listeria bacteria (hard cheeses, processed cheeses, cream cheese, cottage cheese, and yogurt need not be avoided) (1).

- Raw or undercooked meat, fish, poultry, or eggs – Young children or infants should not eat raw or undercooked meat or poultry, raw fish or shellfish , including oysters, clams, mussels, and scallops(1). These foods may contain harmful bacteria or parasites that could cause children to contract a dangerous food borne illness.

- Raw vegetable sprouts (alfalfa, clover, bean, and radish) – Sprouts can cause potentially dangerous Salmonella and E. coli O157 infection. Sprouts grown under clean conditions in the home also present a risk because bacteria may be present in seed. Cook sprouts to significantly reduce the risk of illness (28).

- Deli meats, hot dogs, and processed meats (avoid unless heated until steaming hot) – These foods have been found to be contaminated with *Listeria monocytogenes*; if adequately cooked, this bacteria is destroyed.

425F Routinely feeding a diet very low in calories and/or essential nutrients.

Highly restrictive diets prevent adequate intake of nutrients, interfere with growth and development, and may lead to other adverse physiological effects (29). Well-balanced vegetarian diets with dairy products and eggs are generally associated with good health. However, strict vegan diets may be inadequate in calories, vitamin B12, vitamin D, calcium, iron, protein, and essential amino acids needed for growth and development (30). The more limited the diet, the greater the health risk. Given the health and nutrition risks associated with highly restrictive diets, WIC can help the parent to assure that the child consumes an adequate diet to optimize health during critical periods of growth as well as for the long term.

425G Feeding dietary supplements with potentially harmful consequences.

A child consuming inappropriate or excessive amounts of single or multivitamin or mineral or herbal remedy not prescribed by a physician is at risk for a variety of adverse effects including harmful nutrient interactions, toxicity, and teratogenicity (1, 31). Like drugs, herbal or botanical preparations have chemical and biological activity, may have side effects, and may interact with certain medications – these interactions can cause problems and can even be dangerous (32). Botanical supplements are not necessarily safe because the safety of a botanical depends on many things, such as its chemical makeup, how it works in the body, how it is prepared, and the dose used (32). While some herbal teas may be safe, some have undesirable effects, particularly on young children who are fed herbal teas or who receive breast milk from mothers who have ingested herbal teas (33). Examples of teas with potentially harmful effects to children include: licorice, comfrey leaves, sassafras, senna, buckhorn bark, cinnamon, wormwood, woodruff, valerian, foxglove, pokeroot or pokeweed, periwinkle, nutmeg, catnip, hydrangea, juniper, Mormon tea, thorn apple, yohimbe bark, lobelia, oleander, Matế, kola nut or gotu cola, and chamomile (33-35).

425H Routinely not providing dietary supplements recognized as essential by national public health policy when a child's diet alone cannot meet nutrient requirements.

Depending on a child's specific needs and environmental circumstances, certain dietary supplements may be recommended by the child's health care provider to ensure health. For example, fluoride supplements may be of benefit in reducing dental decay for children living in fluoride-deficient areas (1, 36). In addition, the AAP recommends that children who are ingesting less than 1 liter (1 quart) per day of vitamin D- fortified formula or milk should receive a vitamin D supplement of 400 IU/day (37). Since 1 quart of milk is in excess of the recommended 2 cups of milk per day for pre-school children (38), most children will require a vitamin D supplement.

425I Routine ingestion by child of nonfood items (Pica).

Pica is the compulsive eating of nonnutritive substances and can have serious medical implications (38). Pica is observed most commonly in areas of low socioeconomic status and is more common in women (especially pregnant women) and in children (35). Pica has also been seen in children with obsessive- compulsive disorders, mental retardation, and sickle cell disease (39-41). Complications of this disorder include: iron-deficiency anemia, lead poisoning, intestinal obstruction, acute toxicity from soil contaminants, and helminthic infestations (39, 42, 43).

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427 Inappropriate Nutrition Practices for Women

Definition/Cut-off Value

Routine nutrition practices that may result in impaired nutrient status, disease, or health problems. These practices, with examples, are outlined below. Refer to "Attachment to 427-Justification and References" for this criterion.

Participant Category and Priority Level

Category	Priority
Pregnant Women	IV
Breastfeeding Women	IV
Non-Breastfeeding Women	VI

Inappropriate Nutrition Practices for Women	Examples of Inappropriate Nutrition Practices (including but not limited to)
427A Consuming dietary supplements with potentially harmful consequences.	Examples of dietary supplements which when ingested in excess of recommended dosages, may be toxic or have harmful consequences: • Single or multiple vitamins; • Mineral supplements; and • Herbal or botanical supplements/remedies/teas.
427B Consuming a diet very low in calories and/or essential nutrients; or impaired caloric intake or absorption of essential nutrients following bariatric surgery.	• Strict vegan diet; • Low-carbohydrate, high-protein diet; • Macrobiotic diet; and • Any other diet restricting calories and/or essential nutrients.
427C Compulsively ingesting non-food items (pica).	• Non-food items: • Ashes; • Baking soda; • Burnt matches; • Carpet fibers; • Chalk; • Cigarettes; • Clay; • Dust; • Large quantities of ice and/or freezer frost; • Paint chips; • Soil; and • Starch (laundry and cornstarch).

Inappropriate Nutrition Practices for Women	Examples of Inappropriate Nutrition Practices (including but not limited to)
427D Inadequate vitamin/mineral supplementation recognized as essential by national public health policy.	• Consumption of less than 27 mg of iron as a supplement daily by pregnant woman. • Consumption of less than 150 μg of supplemental iodine per day by pregnant and breastfeeding women. • Consumption of less than 400 mcg of folic acid from fortified foods and/or supplements daily by non-pregnant woman.
427E Pregnant woman ingesting foods that could be contaminated with pathogenic microorganisms.	Potentially harmful foods: • Raw fish or shellfish, including oysters, clams, mussels, and scallops; • Refrigerated smoked seafood, unless it is an ingredient in a cooked dish, such as a casserole; • Raw or undercooked meat or poultry; • Hot dogs, luncheon meats (cold cuts), fermented and dry sausage and other deli-style meat or poultry products unless reheated until steaming hot; • Refrigerated pâté or meat spreads; • Unpasteurized milk or foods containing unpasteurized milk; • Soft cheeses such as feta, Brie, Camembert, blue-veined cheeses and Mexican style cheese such as queso blanco, queso fresco, or Panela unless labeled as made with pasteurized milk; • Raw or undercooked eggs or foods containing raw or lightly cooked eggs including certain salad dressings, cookie and cake batters, sauces, and beverages such as unpasteurized eggnog; • Raw sprouts (alfalfa, clover, and radish); or • Unpasteurized fruit or vegetable juices.

Attachment to 427: Justification and References

Inappropriate Nutrition Practices for Women

Justification

427A Consuming dietary supplements with potentially harmful consequences.

Women taking inappropriate or excessive amounts of dietary supplements, such as single or multivitamins or minerals, or botanical (including herbal) remedies or teas, are at risk for adverse effects such as harmful nutrient interactions, toxicity and teratogenicity (1, 2). Pregnant and lactating women are at higher risk secondary to the potential transference of harmful substances to their infant.

Most nutrient toxicities occur through excessive supplementation of particular nutrients, such as, vitamins A, B-6 and niacin, iron and selenium (3). Large doses of vitamin A may be teratogenic (4). Because of this risk, the Institute of Medicine recommends avoiding preformed vitamin A supplementation during the first trimester of pregnancy (4). Besides nutrient toxicities, nutrient-nutrient and drug-nutrient interactions may adversely affect health.

Many herbal and botanical remedies have cultural implications and are related to beliefs about pregnancy and breastfeeding. The incidence of herbal use in pregnancy ranges from 7-55 % with echinacea and ginger being the most common (1). Some botanical (including herbal) teas may be safe; however, others have undesirable effects during pregnancy and breastfeeding. Herbal supplements such as, blue cohash and pennyroyal stimulate uterine contractions, which may increase the risk of miscarriage or premature labor (1, 5). The March of Dimes and the American Academy of Pediatrics recommend cautious use of tea mixtures because of the lack of safety testing in pregnant women (6).

427B Consuming a diet very low in calories and/or essential nutrients; or impaired caloric intake or absorption of essential nutrients following bariatric surgery.

Women consuming highly restrictive diets are at risk for primary nutrient deficiencies, especially during critical developmental periods such as pregnancy. Pregnant women who restrict their diets may increase the risk of birth defects, suboptimal fetal development and chronic health problems in their children. Examples of nutrients associated with negative health outcomes are:

- Low iron intake and maternal anemia and increased risk of preterm birth or low birth weight (7, 8).
- Low maternal vitamin D status and depressed infant vitamin D status (9).
- Low folic acid and NTD (10, 11, 12).

Low calorie intake during pregnancy may lead to inadequate prenatal weight gain, which is associated with infant intrauterine growth restriction (IUGR) (13) and birth defects (10, 11, 14). The pregnant adolescent who restricts her diet is of particular concern since her additional growth needs compete with the developing fetus and the physiological changes of pregnancy (14).

Strict vegan diets may be highly restrictive and result in nutrient deficiencies. Nutrients of potential concern that may require supplementation are:

- Riboflavin (15, 16)
- Iron (15)
- Zinc (15, 17)
- Vitamin B12 (15, 16, 18)
- Vitamin D (15, 16, 18)
- Calcium (15, 16, 18, 19,)
- Selenium (16)

The pregnant adolescent who consumes a vegan diet is at even greater risk due to her higher nutritional needs (16, 18). The breastfeeding woman who chooses a vegan or macrobiotic diet increases her risk and her baby's risk for vitamin B12 deficiency (18). Severe vitamin B12 deficiency resulting in neurological damage has been reported in infants of vegetarian mothers (18).

With the epidemic of obesity, treatment by gastric bypass surgery has increased more than 600% in the last ten years and has created nutritional deficiencies not typically seen in obstetric or pediatric medical practices (20). Gastrointestinal surgery promotes weight loss by restricting food intake and, in some operations, interrupting the digestive process. Operations that only reduce stomach size are known as "restrictive operations" because they restrict the amount of food the stomach can hold. Examples of restrictive operations are adjustable gastric banding and vertical banded gastroplasty. These types of operations do not interfere with the normal digestive process (21).

Some operations combine stomach restriction with a partial bypass of the small intestine; these are known as malabsorptive operations. Examples of malabsorptive operations are Roux-en-y gastric bypass (RGB) and Biliopancreatic diversion (BPD). Malabsorptive operations carry a greater risk for nutritional deficiencies because the procedure causes food to bypass the duodenum and jejunum, where most of the iron and calcium are absorbed. Menstruating women may develop anemia because not enough iron and vitamin B12 are absorbed. Decreased absorption of calcium may also contribute to osteoporosis and metabolic bone disease (21). A breastfeeding woman who has had gastric bypass surgery is at risk of vitamin B12 deficiency for herself and her infant (22).

427C Compulsively ingesting non-food items (pica).

Pica, the compulsive ingestion of non-food substances over a sustained period of time, is linked to lead poisoning and exposure to other toxicants, anemia, excess calories or displacement of nutrients, gastric and small bowel obstruction, as well as, parasitic infection (23). It may also contribute to nutrient deficiencies by either inhibiting absorption or displacing nutrient dense foods in the diet.

Poor pregnancy outcomes associated with pica-induced lead poisoning, include lower maternal hemoglobin level at delivery (24) and a smaller head circumference in the infant (25). Maternal transfer of lead via breastfeeding has been documented in infants and can result in a neuro-developmental insult depending on the blood lead level and the compounded exposure for the infant during pregnancy and breastfeeding (26, 27, 28).

427D Inadequate vitamin/mineral supplementation recognized as essential by national public health policy.

The Recommended Dietary Allowance (RDA) for pregnant women is 27mg of iron per day (29). The Centers for Disease Control and Prevention recommends iron supplementation for all pregnant women to prevent iron deficiency (30); however, pregnant women should seek guidance from a qualified health care provider before taking dietary supplements (31)

During pregnancy and lactation the iodine requirement is sharply elevated. The RDA for iodine during pregnancy is 220 μg and 290 μg during lactation (29). Severe iodine deficiency during pregnancy can cause cretinism and adversely affect cognitive development in children (32). Even mild iodine deficiency may have adverse affects on the cognitive function of children (33). Since the 1970s, according to the 2001- 2002 National Health and Nutrition Examination Surveys (NHANES), there has been a decrease of approximately 50% in adult urinary iodine values. For women of child bearing age, the median urinary iodine value decreased from 294 to 128 μg per liter (34). The American Thyroid Association recommends that women receive prenatal vitamins containing 150 μg of iodine daily during pregnancy and lactation (35). The iodine content of prenatal vitamins in the Unites States is not mandated, thus not all prenatal vitamins contain iodine (36). Pregnant and breastfeeding women should be advised to review the iodine content of their vitamins and discuss the adequacy of the iodine with their health care provider.

Non-pregnant women of childbearing age who do not consume adequate amounts of folic acid are at greater risk for functional folate deficiency, which has been proven to cause neural tube defects (NTDs), such as spina bifida and anencephaly (37-40).

Folic acid consumed from fortified foods and/or a vitamin supplement in addition to folate found naturally in food reduces this risk (12). The terms "folic acid" and "folate" are used interchangeably, yet they have different meanings. Folic acid is the synthetic form used in vitamin supplements and fortified foods (12, 38, 39). Folate occurs naturally and is found in foods, such as dark green leafy vegetables, strawberries, and orange juice (12).

Studies show that consuming 400 mcg of folic acid daily interconceptionally can prevent 50 percent of neural tube defects (12). Because NTDs develop early in pregnancy (between the 17th and 30th day) and many pregnancies are not planned, it is important to have adequate intakes before pregnancy and throughout the childbearing years (14). NTDs often occur before women know they are pregnant. It is recommended that all women capable of becoming pregnant consume a multivitamin containing 400 mcg of folic acid daily (39-41). It is important that breastfeeding and non-breastfeeding women participating in the WIC Program know about folic acid and foods that contain folate to encourage preconceptional preventive practices (38).

427E Pregnant woman ingesting foods that could be contaminated with pathogenic microorganisms.

Food-borne illness is a serious public health problem (42). The causes include pathogenic microorganisms (bacteria, viruses, and parasites) and their toxins and chemical contamination. The symptoms are usually gastrointestinal in nature (vomiting, diarrhea, and abdominal pain), but neurological and "non-specific" symptoms may occur as well. Over the last 20 years, certain foods have been linked to outbreaks of food- borne illness. These foods include: milk (Campylobacter); shellfish (Norwalk-like viruses); unpasteurized apple cider (Escherichia coli O 157:H7); eggs (Salmonella); fish (ciguatera poisoning); raspberries (Cyclospora); strawberries (Hepatitis A virus); and ready-to-eat meats (Listeria monocytogenes).

Listeria monocytogenes can cause an illness called listeriosis. Listeriosis during pregnancy can result in premature delivery, miscarriage, fetal death, and severe illness or death of a newborn from the infection (43). Listeriosis can be transmitted to the fetus through the placenta even if the mother is not showing signs of illness.

Pregnant women are especially at risk for food-borne illness. For this reason, government agencies such as the Centers for Disease Control and Prevention, the USDA Food Safety and Inspection Service, and the Food and Drug Administration advise pregnant women and other high risk individuals not to eat foods as identified in the definition for this criterion (42, 43).

The CDC encourages health care professionals to provide anticipatory guidance, including the "four simple steps to food safety" of the Fight BAC campaign, to help reduce the incidence of food-borne illnesses.

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Websites for Additional Information

427.1 References - Supplements/Herbs

http://www.marchofdimes.com http://www.dietary-supplements.info.nih.gov/
http://www.vm.cfsan.fda.gov/
http://www.herbalgram.org

427.2 References - Highly Restrictive Eating/Nutrient Malabsorption

http://www.eatright.org
http://www.nimh.nih.gov
http://www.eatright.org/
http://www.llu.edu/llu/vegetarian/
http://www.nal.usda.gov/fnic/pubs/bibs/gen/vegetarian.htm
http://www.gastric-bypass-treatment.com/long-term-weight-loss-surgery-compications.aspx

427.3 References - Non-Food Ingestion

http://www.nieh.nih.gov/
http://www.epa.gov/ 427.4 References - Folic Acid
http://www.cdc.gov/
http://www.aap.org/ http://www.iom.edu/

427.4 427.5 References - Listeriosis

http://www.cdc.gov/foodsafety
http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm http://www.cfsan.fda.gov
http://www.foodsafety.gov http://www.fightbac.org
http://www.ific.org

428 Dietary Risk Associated with Complementary Feeding Practices

Definition/Cut-off Value

An infant or child who has begun to or is expected to begin to 1) consume complementary foods and beverages, 2) eat independently, 3) be weaned from breast milk or infant formula, or 4) transition from a diet based on infant/toddler foods to one based on the *Dietary Guidelines for Americans*, is at risk of inappropriate complementary feeding.

A complete nutrition assessment, including for risk #411, Inappropriate Nutrition Practices for Infants, or

#425, Inappropriate Nutrition Practices for Children, must be completed prior to assigning this risk.

Participant Category and Priority Level

Category	Priority
Infants 4 to 12 months	IV
Children 12 through 23 months	V

Justification

Overview

Complementary feeding is the gradual addition of foods and beverages to the diet of the infant and young child (1, 2). The process of adding complementary foods should reflect the physical, intellectual, and behavioral stages as well as the nutrient needs of the infant or child. Inappropriate complementary feeding practices are common and well documented in the literature. Caregivers often do not recognize signs of developmental readiness and, therefore, offer foods and beverages that may be inappropriate in type, amount, consistency, or texture. Furthermore, a lack of nationally accepted feeding guidelines for children under the age of two might lead caregivers to assume that all foods are suitable for this age range.

The 2000 WIC Participant and Program Characteristics study (PC 2000) shows greater percentages of anthropometric and biochemical risk factors in children ages 6 to 24 months than in children 24 to 60 months of age (3). These differences could reflect physical manifestations of inappropriate complementary feeding practices. Although PC 2000 shows a lower dietary risk in the 6 to 24 month age group, this risk is probably under-reported due to the high incidence of other higher priority nutrition risks.

Age	Anthropometric Risk (%)	Biochemical Risk (%)	Dietary Risk (%)
6-11 mos	40	16	55
1 yr	41	14	76
2 yrs	37	12	80
3 yrs	32	9	80
4 yrs	35	7	79

The Institute of Medicine (IOM), in their report, Summary of Proposed Criteria for Selecting the WIC Food Packages identified specific nutrients with potential for inadequacy or excess for WIC participants. For breast-fed infants 6 through 11 months, the nutrients of concern for potential inadequacy are iron and zinc while those for children 12 through 23 months are iron, vitamin E, fiber and potassium. The nutrients of concern for excessive intake in children 12 through 23 months are zinc, preformed vitamin A, sodium and energy (4).

To manage complementary feeding successfully, caregivers must make decisions about what, when, where, and how to offer foods according to the infant's or child's:

- Requirement for energy and nutrients;
- Fine, gross, and oral motor skills;
- Emerging independence and desire to learn to self-feed; and
- Need to learn healthy eating habits through exposure to a variety of nutritious foods (1, 2, 5, 6, 7).

How WIC Can Help

The WIC Program plays a key role not only in the prevention of nutrition-related health problems, but also in the promotion of lifelong healthy eating behaviors. The process of introducing complementary foods provides a unique opportunity for WIC staff to assist caregivers in making appropriate feeding decisions for young children that may have lifelong implications.

Prevention of Nutrition-Related Health Problems:

Zinc deficiency

Zinc is critical for growth and immunity, as well as brain development and function. The concentration of zinc in breast milk declines to a level considered inadequate to meet the needs of infants 7 to 12 months of age (8, 9). Complementary food sources of zinc, such as meats or zinc-fortified infant cereals, should be introduced to exclusively breastfed infants by 7 months.

Iron deficiency

Hallberg states, "The weaning period in infants is especially critical because of the especially high iron requirements and the importance of adequate iron nutrition during this crucial period of development" (10). According to the Centers for Disease Control and Prevention (CDC), children less than 24 months of age, especially those between 9 and 18 months, have the highest rate of iron deficiency of any age group (11). In the third National Health and Nutrition Examination Survey (NHANES III), children ages 1 to 2, along with adolescent girls, had the highest rates of overt anemia, while 9 % were iron deficient (12). Meanwhile, the Pediatric Nutrition Surveillance 2003 Report noted anemia rates of 16.2 % in 6 to 11 months of age infants, 15.0 % in 12 to 17 months of age, and 13.5 % in 18-23 months of age children (13).

Picciano et al. reported that the intake of iron decreased from 98% of the recommended amount at 12 months to 76% at 18 months of age (14). In WIC clinics, Kahn et al. found that the incidence of anemia was significantly more common in 6 to 23 months of age children than in 23 to 59 months of age. The 6 to 23 months of age was also more likely than the older child to develop anemia despite a normal hemoglobin test at WIC certification (15).

Feeding practices that may prevent iron deficiency include:

- Breastfeeding infants exclusively until 4 to 6 months of age;
- Feeding only iron-fortified infant formula as a substitute for or supplement to breast milk until age 1;
- Offering a supplemental food source of iron to infants, between 4 to 6 months or when developmentally ready;
- Avoiding cow's milk until age 12 months; and
- Limiting milk consumption to no more than 24 ounces per day for children aged 1 to 5 years (11).

Obesity

Much of the literature on obesity indicates that learned behaviors and attitudes toward food consumption are major contributing factors. Proskitt states, "The main long term effect of weaning on nutritional status could be through attitudes toward food and meals learned by infants through the weaning process. This may be a truly critical area for the impact of feeding on later obesity (16).

Birch and Fisher state, "An enormous amount of learning about food and eating occurs during the transition from the exclusive milk diet of infancy to the omnivore's diet consumed by early childhood." The authors believe that parents have the greatest influence on assuring eating behaviors that help to prevent future overweight and obesity (17).

The American Academy of Pediatrics (AAP) states, "…prevention of overweight is critical, because long-term outcome data for successful treatment approaches are limited…" and, "Families should be educated and empowered through anticipatory guidance to recognize the impact they have on their children's development through lifelong habits of physical activity and nutritious eating" (1). Parents can be reminded that they are role models and teachers who help their children adopt healthful eating and lifestyle practices.

Tooth decay

Children under the age of 2 are particularly susceptible to Early Childhood Caries (ECC), a serious public health problem (18). In some communities, the incidence of ECC can range from 20% to 50% (19). Children with ECC appear to be more susceptible to caries in permanent teeth at a later age (1, 20). Dental caries can be caused by many factors, including prolonged use of a bottle and extensive use of sweet and sticky foods (21).

The Avon Longitudinal Study of Pregnancy and Childhood examined 1,026 children aged 18 months and found that baby bottles were used exclusively for drinking by 10 % of the children and for at least one feeding by 64% of the children. Lower income families were found to use the bottle more frequently for carbonated beverages than higher income families (22).

Complementary feeding practices that caregivers can use to prevent oral health problems include:

- Avoiding concentrated sweet foods like lollipops, candy and sweetened cereals.
- Avoiding sweetened beverages. Introducing fruit juice after 6 months of age (1) and only feeding it in a cup; and limiting fruit juice to 4-6 ounces/day.
- Weaning from a bottle to a cup by 12 to 14 months (23).

Promotion of Lifelong Healthy Eating Behaviors:

Timing of introduction of complementary foods

The AAP, Committee on Nutrition (CON) states that, "… complementary foods may be introduced between ages 4 and 6 months…" but cautions that actual timing of introduction of complementary foods for an individual infant may differ from this (population based) recommendation. Furthermore, the AAP-CON acknowledges a difference of opinion with the AAP, Section on Breastfeeding, which recommends exclusive breastfeeding for at least 6 months (1).

Early introduction of complementary foods before the infant is developmentally ready (i.e., before 4-6 months of age) is associated with increased respiratory illness, allergy in high-risk infants, and decreased breast milk production (7).

Infants with a strong family history of food allergy should be breastfed for as long as possible and should not receive complementary foods until 6 months of age. The introduction of the major food allergens such as eggs, milk, wheat, soy, peanuts, tree nuts, fish and shellfish should be delayed until well after the first year of life as guided by the health care provider (7, 24).

Delayed introduction of complementary foods, on the other hand, is also associated with feeding difficulties. Northstone et al found that introduction of textured foods after 10 months of age resulted in more feeding difficulties later on, such as picky eating and/or refusal of many foods. To avoid these and other developmental problems, solid foods should be introduced no later than 7 months, and finger foods between 7 and 9 months of age (25).

Choosing Appropriate Complementary Foods and Beverages

Complementary foods should supply essential nutrients and be developmentally appropriate (7). The WIC Infant Feeding Practices Study (WIC-IFPS) found that by 6 months of age, greater than 80% of mothers introduced inappropriate dairy foods (i.e., yogurt, cheese, ice cream and pudding), 60% introduced sweets/snack foods (defined as chips, pretzels, candy, cookies, jam and honey), and 90% introduced high protein foods (beans, eggs and peanut butter) to their infants. This study also found that, among the infants who received supplemental drinks by 5 months of age, three-quarters had never used a cup, concluding that most infants received supplemental drinks from the bottle. By one year of age, almost 90% of WIC infants received sweetened beverages and over 90% received sweet/snack foods (26).

The Feeding Infants and Toddlers Study (FITS) found that WIC infants and toddlers consumed excess energy but inadequate amounts of fruits and vegetables. In addition, WIC toddlers consumed more sweets, desserts and sweetened beverages than non-WIC toddlers (27).

Sixty-five percent of all food-related choking deaths occur in children under the age of 2. Children in this age group have not fully developed their oral-motor skills for chewing and swallowing. For this reason, they should be fed foods of an appropriate consistency, size, and shape. Foods commonly implicated in choking include hot dogs, hard, gooey or sticky candy, nuts and seeds, chewing gum, grapes, raisins, popcorn, peanut butter and hard pieces of raw fruits and vegetables and chunks of meat or cheese (1, 28, 29).

Introducing a Cup

Teaching an infant to drink from a cup is part of the process of acquiring independent eating skills. A delay in the initiation of cup drinking prolongs the use of the nursing bottle that can lead to excess milk and juice intake and possible Early Childhood Caries (ECC). Weaning from a bottle to a cup should occur by 12 to14 months of age (23).

Helping The Child Establish Lifelong Healthy Eating Patterns

Lifelong eating practices may have their roots in the early years. Birch and Fisher state that food exposure and accessibility, the modeling behavior of parents and siblings, and the level of parental control over food consumption influence a child's food preferences. Inappropriate feeding practices may result in under- or over-feeding and may promote negative associations with eating that continue into later life.

Normal eating behaviors such as spitting out or gagging on unfamiliar food or food with texture are often misinterpreted as dislikes or intolerances leading to a diminished variety of foods offered. Infants have an innate preference for sweet and salty tastes. Without guidance, an infant may develop a lifelong preference for highly sweetened or salty foods rather than for a varied diet (17).

A young child gradually moves from the limited infant/toddler diet to daily multiple servings from each of the basic food groups as described in the Dietary Guidelines (30). The toddler stage (ages 1-2 years) may frustrate caregivers since many toddlers have constantly changing food preferences and erratic appetites. In addition, toddlers become skeptical about new foods and may need to experience a food 15-20 times before accepting it (31).

Caregivers can be guided and supported in managing common toddler feeding problems. Feeding practices that caregivers can use to facilitate a successful transition to a food group-based diet include:

- Offering a variety of developmentally appropriate nutritious foods;
- Reducing exposure to foods and beverages containing high levels of salt and sugar;
- Preparing meals that are pleasing to the eye and include a variety of colors and textures; setting a good example by eating a variety of foods;
- Offering only whole milk from age 1-2; (Lower fat milk can be introduced after that age.)
- Providing structure by scheduling regular meal and snack times;
- Allowing the child to decide how much or whether to eat;
- Allowing the child to develop eating/self-feeding skills; and
- Eating with the child in a pleasant mealtime environment without coercion.

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501 Possibility of Regression

Definition/Cut-off Value

A participant who has previously been certified eligible for the Program may be considered to be at nutritional risk in the next certification period if the competent professional authority determines there is a possibility of regression in nutritional status without the benefits that the WIC Program provides. The State may limit the number of times and circumstances under which a participant may be certified due to the possibility of regression.

Participant Category and Priority Level

Category	Priority
Breastfeeding Women	I, IV, or VII
Non-Breastfeeding Women	III, IV, V, VI, or VII
Infants	I, IV, or VII
Children	III, V, or VII

Justification

On occasion, a participant's nutritional status may be improved, to the point that s/he rises slightly above the cutoff of the initial risk condition by the end of the certification period. This occurs most frequently with those conditions that contain specific cutoffs or thresholds, such as anemia or inappropriate growth. Removal of such individuals from the Program can result in a "revolving-door" situation where the individual's recently improved nutritional status deteriorates quickly, so that s/he then re-enters the Program at equal or greater nutrition risk status than before. Therefore, WIC Program regulations permit State agencies to certify previously certified individuals who do not demonstrate a current nutrition risk condition against the possibility of their reverting to the prior existing risk condition if they do not continue to receive WIC benefits. This policy is consistent with the preventive nature of the WIC Program, and enables State and local agencies to ensure that their previous efforts to improve a participant's nutrition status, as well as to provide referrals to other health care, social service, and/or public assistance programs are not wasted.

Competent Professional Authorities and other certifying staff should keep in mind that every nutrition risk condition does not necessarily lead itself to the possibility of regression. For example, gestational diabetes or gingivitis of pregnancy are not conditions to which a new mother could regress, since they are directly associated with pregnancy, and the breastfeeding or non-breastfeeding women cannot regress to being pregnant if she is no longer receiving WIC benefits.

References

1. WIC Program Regulations, Sect. 246.7(e)(1)(iii).

Clarification

After April 1, 1999, any certification for regression must be based on the new set of risk criteria. For example, a person deemed anemic under a State's more inclusive criteria prior to April 1, 1999, may only be certified for regression after April 1, 1999, if his/her blood values would have met the revised CDC criteria for anemia published in the April 1998 MMWR tables.

Further, regression may only be used as a certifying nutrition risk when it complies with the policies established by the State agency for its use, as set forth in the WIC Nutrition Services Standards issued by FNS in 1988. Such policies must include:

1. A requirement for a nutritional assessment to rule out the existence of another current risk factor before using eligibility on regression;
2. A requirement for written identification of the risk factor to which the participant may regress;
3. A list of risk factors and priority levels for which eligibility based regression may be applied; and
4. A limit on the number of times regression for a given risk factor may be consecutively applied.

502 Transfer of Certification

Definition/Cut-off Value

Person with current valid Verification of Certification (VOC) document from another State or local agency. The VOC is valid until the certification period expires, and shall be accepted as proof of eligibility for program benefits. If the receiving local agency has waiting lists for participation, the transferring participant shall be placed on the list ahead of all other waiting applicants.

This criterion would be used primarily when the VOC card/document does not reflect another (more specific) nutrition risk condition at the time of transfer or if the participant was initially certified based on a nutrition risk condition not in use by the receiving State agency.

Participant Category and Priority Level

Category	Priority
Pregnant Women	N/A
Breastfeeding Women	N/A
Non-Breastfeeding Women	N/A
Infants	N/A
Children	N/A

Justification

Local agencies must accept Verification of Certification (VOC) documents from participants. A person with a valid VOC document shall not be denied participation in the receiving State because the person does not meet that State's particular eligibility criteria. Once a WIC participant has been certified by a local agency, the service delivery area into which s/he moves is obligated to honor that commitment.

References

1. FNS Instruction 803-11, Rev.1.
2. WIC Program Regulations; Section 246.7(k).

601 Breastfeeding Mother of Infant at Nutritional Risk

Definition/Cut-off Value

A breastfeeding woman whose breastfed infant has been determined to be at nutritional risk.

Participant Category and Priority Level

Category	Priority
Pregnant Woman (who is breastfeeding)	
601A Priority 1 mother	I
601B Priority 2 mother	II
601D Priority 4 mother	IV
Breastfeeding Women	
601A Priority 1 mother	I
601B Priority 2 mother	II
601D Priority 4 mother	IV
Must be the same priority as at-risk infant.	

Justification

A breastfed infant is dependent on the mother's milk as the primary source of nutrition. Special attention should therefore be given to the health and nutritional status of the mother (5). Lactation requires approximately 500 additional Kcal per day as well as increased protein, calcium, and other vitamins and minerals (3, 1). Inadequate maternal nutrition may result in decreased nutrient content of the milk (1).

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602 Breastfeeding Complications or Potential Complications (Women)

Definition/Cut-off Value

A breastfeeding woman with any of the following complications or potential complications for breastfeeding:

Complications (or Potential Complications)	
602A Severe breast engorgement	602E Cracked, bleeding or severely sore nipples
602B Recurrent plugged ducts	602F Age ≥ 40 years
602C Mastitis (fever or flu-like symptoms with localized breast tenderness)	602G Failure of milk to come in by 4 days postpartum
602D Flat or inverted nipples	602H Tandem nursing (breastfeeding two siblings who are not twins)

Participant Category and Priority Level

Category	Priority
Pregnant Women (who is breastfeeding)	I
Breastfeeding Women	I

Justification

602A Severe breast engorgement

Severe breast engorgement is often caused by infrequent nursing and/or ineffective removal of milk. This severe breast congestion causes the nipple-areola area to become flattened and tense, making it difficult for the baby to latch-on correctly. The result can be sore, damaged nipples and poor milk transfer during feeding attempts. This ultimately results in diminished milk supply. When the infant is unable to latch-on or nurse effectively, alternative methods of milk expression are necessary, such as using an electric breast pump.

602B Recurrent plugged ducts

A clogged duct is a temporary back-up of milk that occurs when one or more of the lobes of the breast do not drain well. This usually results from incomplete emptying of milk. Counseling on feeding frequency or method or advising against wearing an overly tight bra or clothing can assist.

602C Mastitis
Mastitis is a breast infection that causes a flu-like illness accompanied by an inflamed, painful area of the breast - putting both the health of the mother and successful breastfeeding at risk. The woman should be referred to her health care provider for antibiotic therapy.

602D Flat or inverted nipples
Infants may have difficulty latching-on correctly to nurse when nipples are flat or inverted. Appropriate interventions can improve nipple protractility and skilled help guiding a baby in proper breastfeeding technique can facilitate proper attachment.

602E Cracked, bleeding or severely sore nipples
Severe nipple pain, discomfort lasting throughout feedings, or pain persisting beyond one week postpartum is atypical and suggests the baby is not positioned correctly at the breast. Improper infant latch-on not only causes sore nipples, but impairs milk flow and leads to diminished milk supply and inadequate infant intake. There are several other causes of severe or persistent nipple pain, including Candida or staph infection. Referrals for lactation counseling and/or examination by the woman's health care provider are indicated.

602F Age ≥ 40 years
Older women (over 40) are more likely to experience fertility problems and perinatal risk factors that could impact the initiation of breastfeeding. Because involutional breast changes can begin in the late 30's, older mothers may have fewer functioning milk glands resulting in greater difficulty producing an abundant milk supply.

602G Failure of milk to come in by 4 days postpartum
Failure of milk to come in by 4 days postpartum may be a result of maternal illness or perinatal complications. This may place the infant at nutritional and/or medical risk, making temporary supplementation necessary until a normal breast milk supply is established.

602H Tandem nursing (breastfeeding two siblings who are not twins)
With tandem nursing the older baby may compete for nursing privileges, and care must be taken to assure that the younger baby has first access to the milk supply. The mother who chooses to tandem nurse will have increased nutritional requirements to assure her adequate milk production.

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603 Breastfeeding Complications or Potential Complications (Infants)

Definition/Cut-off Value

A breastfed infant with any of the following complications or potential complications for breastfeeding.

BF Complications (or Potential Complications)	
603A Jaundice	603B Weak or ineffective suck
603C Difficulty latching onto mother's breast	603D Inadequate stooling (for age, as determined by a physician or other health care professional), and/or less than 6 wet diapers per day

Participant Category and Priority Level

Category	Priority
Infants	I

Justification

603A Jaundice

Jaundice occurs when bilirubin accumulates in the blood because red blood cells break down too quickly, the liver does not process bilirubin as efficiently as it should, or intestinal excretion of bilirubin is impaired. The slight degree of jaundice observed in many healthy newborns is considered physiologic. Jaundice is considered pathologic if it appears before 24 hours, lasts longer than a week or two, reaches an abnormally high level, or results from a medical problem such as rapid destruction of red blood cells, excessive bruising, liver disease, or other illness. When jaundice occurs in an otherwise healthy breastfed infant, it is important to distinguish "breastmilk jaundice" from "breastfeeding jaundice" and determine the appropriate treatment.

- In the condition known as "breastmilk jaundice," the onset of jaundice usually begins well after the infant has left the hospital, 5 to 10 days after birth, and can persist for weeks and even months. Early visits to the WIC clinic can help identify and refer these infants to their primary health care provider. Breastmilk jaundice is a normal physiologic phenomenon in the thriving breastfed baby and is due to a human milk factor that increases intestinal absorption of bilirubin. The stooling and voiding pattern is normal. If the bilirubin level approaches 18-20 mg%, the health care provider may choose to briefly interrupt breastfeeding for 24-36 hours which results in a dramatic decline in bilirubin level.
- Resumption of breastfeeding usually results in cessation of the rapid fall in serum bilirubin concentration, and in many cases a small increase may be observed, followed by the usual gradual decline to normal.

- "Breastfeeding jaundice", is an exaggeration of physiologic jaundice, which usually peaks between 3 and 5 days of life, though it can persist longer. This type of jaundice is a common marker for inadequate breastfeeding. An infant with breastfeeding jaundice is underfed and displays the following symptoms: infrequent or ineffective breastfeeding; failure to gain appropriate weight; infrequent stooling with delayed appearance of yellow stools (i.e., prolonged passage of meconium); and scant dark urine with urate crystals. Improved nutrition usually results in a rapid decline in serum bilirubin concentration.

603B Weak or ineffective suck

A weak or ineffective suck may cause a baby to obtain inadequate milk with breastfeeding and result in a diminished milk supply and an underweight baby. Weak or ineffective suckling can be due to prematurity, low birth weight, a sleepy baby, or physical/medical problems such as heart disease, respiratory illness, or infection. Newborns who receive bottle feedings before beginning breastfeeding or who frequently use a pacifier may have trouble learning the proper tongue and jaw motions required for effective breastfeeding.

603C Difficulty latching onto the mother's breast

Difficulty latching onto the mother's breast may be due to flat or inverted nipples, breast engorgement, or incorrect positioning and breastfeeding technique. Early exposure to bottle feedings can predispose infants to "nipple confusion" or difficulties learning to attach to the breast correctly and effectively extract milk. A referral for lactation counseling should be made.

603D Inadequate stooling and/or less than 6 wet diapers per day

Inadequate stooling or less than 6 wet diapers are probable indicators that the breastfed infant is not receiving adequate milk. Not only is the baby at risk for failure to thrive, but the mother's milk is at risk for rapidly diminishing due to ineffective removal of milk. The breastfed infant with inadequate caloric intake must be identified early and the situation remedied promptly to avoid long-term consequences of dehydration or nutritional deprivation. Although failure to thrive can have many etiologies, the most common cause in the breastfed infant is insufficient milk intake as a result of infrequent or ineffective nursing. Inadequate breastfeeding can be due to infant difficulties with latching on or sustaining suckling, use of a nipple shield over the mother's nipple, impaired let down of milk, a non-demanding infant, excessive use of a pacifier, or numerous other breastfeeding problems.

The literature regarding inadequate stooling varies widely in terms of quantification; this condition is best diagnosed by the pediatrician or other health care practitioner.

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701 Infant Up to 6 Months Old of WIC Mother or of a Woman Who Would Have Been Eligible During Pregnancy

Definition/Cut-off Value

An infant < six months of age whose mother was a WIC Program participant during pregnancy or whose mother's medical records document that the woman was at nutritional risk during pregnancy because of detrimental or abnormal nutritional conditions detectable by biochemical or anthropometric measurements or other documented nutritionally related medical conditions.

Participant Category and Priority Level

Category	Priority
Infants	II

Justification

Federal Regulations designate these conditions for WIC eligibility (3).

WIC participation during pregnancy is associated with improved pregnancy outcomes. An infant whose nutritional status has been adequately maintained through WIC services during gestation and early infancy may decline in nutritional status if without these services and return to a state of elevated risk for nutrition related health problems. Infants whose mother was at medical/nutritional risk during pregnancy, but did not receive those services, may also be thought of as a group at elevated risk for morbidity and mortality in the infant period (1, 2).

WIC participation in infancy is associated with lower infant mortality, decreased anemia for infants and improvements in growth (head circumference, height and weight). Infants on WIC are more likely to consume iron-fortified formula and cereal and less likely to consume cow's milk before one year, thus lowering the risk of developing iron deficiency anemia (1, 2).

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702 Breastfeeding Infant of Woman at Nutritional Risk

Definition/Cut-off Value

Breastfeeding infant of woman at nutritional risk.

Participant Category and Priority Level

Category	Priority
Infants	
702A Priority 1 infant	I
702B Priority 2 infant	II
702D Priority 4 infant	IV
*Must be the same priority as at-risk mother.	

Justification

A breastfed infant is dependent on the mother's milk as the primary source of nutrition. Lactation requires the mother to consume an additional 500 Kcal per day (approximately) as well as increased protein, calcium, and other vitamins and minerals (2, 1). Inadequate maternal nutrition may result in decreased nutrient content of the milk (1). Special attention should therefore be given to the health and nutritional status of breastfed infants whose mothers are at nutritional risk (4).

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703 Infant Born of Woman with Mental Retardation or Alcohol or Drug Abuse during Most Recent Pregnancy

Definition/Cut-off Value

Infant born of a woman:

- Presence of mental retardation diagnosed, documented, or reported by a physician or psychologist or someone working under a physician's orders, or as self-reported by applicant/participant/caregiver; or
- Documentation or self-report of any use of alcohol or illegal drugs during most recent pregnancy. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Infants	I

Justification

Cognitive limitation in a parent or primary caretaker has been recognized as a risk factor for failure to thrive (FTT) as well as for abuse and neglect. The retarded caretaker may not exhibit the necessary parenting skills to promote beneficial feeding interactions with the infant (1, 2). Maternal mental illnesses such as severe depression and maternal chemical dependency also represent social risk factors for FTT. Chemical dependency is also strongly associated with abuse and neglect. In 22 States, 90% of caretakers reported for child abuse are active substance abusers (3). All of these maternal conditions may contribute to a lack of synchrony between the infant and mother during feeding and therefore interfere with the infant's growth process. Nutrient intake depends on the synchronization of maternal and infant behaviors involved in feeding interactions (2, 4).

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5. WIC Program Regulations; Sect. 246.7(e)(2)(ii).

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has…") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

801 Homelessness

Definition/Cut-off Value

A woman, infant or child who lacks a fixed and regular nighttime residence; or whose primary nighttime residence is:

- A supervised publicly or privately operated shelter (including a welfare hotel, a congregate shelter, or a shelter for victims of domestic violence) designed to provide temporary living accommodations;
- An institution that provides a temporary residence for individuals intended to be institutionalized;
- A temporary accommodation of not more than 365 days in the residence of another individual; or
- A public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings.

Participant Category and Priority Level

Category	Priority
Pregnant Women	IV or VII
Breastfeeding Women	IV or VII
Non-Breastfeeding Women	VI or VII
Infants	IV or VII
Children	V or VII

Justification

Homeless individuals comprise a very vulnerable population with many special needs. WIC Program regulations specify homelessness as a predisposing nutrition risk condition. Today's homeless population contains a sizeable number of women and children – over one-third of the total homeless population in the U.S.

Studies show forty-three percent of today's homeless are families, and an increasing number of the "new homeless" include economically-displaced individuals who have lost their jobs, exhausted their resources, and recently entered into the ranks of the homeless and consider their condition to be temporary.

References

1. WIC Program Regulations; Sect. 246.7(e)(2)(iv).

802 Migrancy

Definition/Cut-off Value

Categorically eligible women, infants and children who are members of families which contain at least one individual whose principal employment is in agriculture on a seasonal basis, who has been so employed within the last 24 months, and who establishes, for the purposes of such employment, a temporary abode.

Participant Category and Priority Level

Category	Priority
Pregnant Women	IV or VII
Breastfeeding Women	IV or VII
Non-Breastfeeding Women	VI or VII
Infants	IV or VII
Children	V or VII

Justification

Data on the health and/or nutritional status of migrants indicate significantly higher rates or incidence of infant mortality, malnutrition, and parasitic disease (among migrant children) than among the general U.S. population. Therefore, migrancy has long been stipulated as a condition that predisposes persons to inadequate nutritional patterns or nutritionally related medical conditions.

References

1. WIC Program Regulations; Sect. 246.7(e)(2)(iv).

901 Recipient of Abuse

Definition/Cut-off Value

Battering or child abuse/neglect within past 6 months as self-reported, or as documented by a social worker, health care provider or on other appropriate documents, or as reported through consultation with a social worker, health care provider, or other appropriate personnel.

"Battering" generally refers to violent physical assaults on women.

Child abuse/neglect: "Any recent act or failure to act resulting in imminent risk of serious harm, death, serious physical or emotional harm, sexual abuse, or exploitation of an infant or child by a parent or caretaker (1)."

If State law requires the reporting of known or suspected child abuse or neglect, WIC staff must release such information to appropriate State officials. WIC regulations pertaining to confidentiality do not take precedence over such State law.

Participant Category and Priority Level

Category	Priority
Pregnant Women	IV or VII
Breastfeeding Women	IV or VII
Non-Breastfeeding Women	VI or VII
Infants	IV or VII
Children	V or VII

Justification

Battering during pregnancy is associated with increased risks of low birth weight, pre-term delivery, and chorioamnionitis, as well as poor nutrition and health behaviors. Battered women are more likely to have a low maternal weight gain, be anemic, consume an unhealthy diet, and abuse drugs, alcohol, and cigarettes.

Serious neglect and physical, emotional, or sexual abuses have short- and long-term physical, emotional, and functional consequences for children. Nutritional neglect is the most common cause of poor growth in infancy and may account for as much as half of all cases of non-organic failure to thrive.

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12/2013

902 Woman or Infant/Child of Primary Caregiver with Limited Ability to Make Feeding Decisions and/or Prepare Food

Definition/Cut-off Value

Woman (pregnant, breastfeeding, or non-breastfeeding), or infant/child whose primary caregiver is assessed to have a limited ability to make appropriate feeding decisions and/or prepare food. Examples may include individuals who are:

- ≤ 17 years of age:
- Mentally disabled/delayed and/or have a mental illness such as clinical depression (diagnosed by a physician or licensed psychologist);
- Physically disabled to a degree which restricts or limits food preparation abilities; or
- Currently using or having a history of abusing alcohol or other drugs.

Participant Category and Priority Level

Category	Priority
Pregnant Women	IV or VII
Breastfeeding Women	IV or VII
Non-Breastfeeding Women	VI or VII
Infants	IV or VII
Children	V or VII

Justification

The mother or caregiver ≤ 17 years of age generally has limited exposure and application of skills necessary to care for and feed a total dependent. Cognitive limitation in a parent or primary caregiver has been recognized as a risk factor for failure to thrive, as well as for abuse and neglect. The mentally handicapped caregiver may not exhibit the necessary parenting skills to promote beneficial feeding interactions with the infant. Maternal mental illnesses such as severe depression and maternal chemical dependency are also strongly associated with abuse and neglect. In 22 states, 90% of caregivers reported for child abuse are active substance abusers. Certain physical handicaps such as blindness, para- or quadriplegia, or physical anomalies restrict/limit the caregiver's ability to prepare and offer a variety of foods. Education, referrals and service coordination with WIC will aid the mother/caregiver in developing skills, knowledge and/or assistance to properly care for a total dependent.

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5. WIC Program regulations; Sect. 246.7(e)(2).

903 Foster Care

Definition/Cut-off Value

Entering the foster care system during the previous six months or moving from one foster care home to another foster care home during the previous six months.

Participant Category and Priority Level

Category	Priority
Pregnant Women	IV or VII
Breastfeeding Women	IV or VII
Non-Breastfeeding Women	VI or VII
Infants	IV or VII
Children	V or VII

Justification

"Foster children are among the most vulnerable individuals in the welfare system. As a group, they are sicker than homeless children and children living in the poorest sections of inner cities." This statement from a 1995 Government Accounting Office report on the health status of foster children confirms research findings that foster children have a high frequency of mental and physical problems, often the result of abuse and neglect suffered prior to entry into the foster care system. When compared to other Medicaid- eligible children, foster care children have higher rates of chronic conditions such as asthma, diabetes and seizure disorders. They are also more likely than children in the general population to have birth defects, inadequate nutrition and growth retardation including short stature.

Studies focusing on the health of foster children often point out the inadequacy of the foster care system in evaluating the health status and providing follow-up care for the children for whom the system is responsible. Because foster care children are wards of a system which lacks a comprehensive health component, the social and medical histories of foster children in transition, either entering the system or moving from one foster care home to another, are frequently unknown to the adults applying for WIC benefits for the children. For example, the adult accompanying a foster child to a WIC clinic for a first-time certification may have no knowledge of the child's eating patterns, special dietary needs, chronic illnesses or other factors which would qualify the child for WIC. Without any anthropometric history, failure to grow, often a problem for foster children, may not be diagnosed even by a single low cutoff percentile.

Since a high proportion of foster care children have suffered from neglect, abuse or abandonment and the health problems associated with these, entry into foster care or moving from one foster care home to another during the previous six months is a nutritional risk for certification in the WIC Program. Certifiers using this risk should be diligent in evaluating and documenting the health and nutritional status of the foster child to identify other risks as well as problems that may require follow-up or referral to other health care programs.

This nutritional risk cannot be used for consecutive certifications while the child remains in the same foster home. It should be used as the sole risk criterion only if careful assessment of the applicant's nutritional status indicates that no other risks based on anthropometric, medical or nutritional risk criteria can be identified.

The nutrition education, referrals and service coordination provided by WIC will support the foster parent in developing the skills and knowledge to ensure that the foster child receives appropriate nutrition and health care. Since a foster parent frequently has inadequate information about a new foster child's health needs, the WIC nutritionist can alert the foster parent to the nutritional risks that many foster care children have and suggest ways to improve the child's nutritional status.

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12/2013

904 Environmental Tobacco Smoke Exposure

Definition/Cut-off Value

Environmental tobacco smoke (ETS) exposure is defined (for WIC eligibility purposes) as exposure to smoke from tobacco products inside the home (1, 2, 3).* ETS is also known as passive, secondhand, or involuntary smoke.

**See Clarification for background information*

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III,IV,V, or VI
Infants	I
Children	III

Justification

ETS is a mixture of the smoke given off by a burning cigarette, pipe, or cigar (sidestream smoke), and the smoke exhaled by smokers (mainstream smoke). ETS is a mixture of about 85% sidestream and 15% mainstream smoke (4) made up of over 4,000 chemicals, including Polycyclic Aromatic Hydrocarbons (PAHs) and carbon monoxide (5). Sidestream smoke has a different chemical make-up than main-stream smoke. Sidestream smoke contains higher levels of virtually all carcinogens, compared to mainstream smoke (6). Mainstream smoke has been more extensively researched than sidestream smoke, but they are both produced by the same fundamental processes.

ETS is qualitatively similar to mainstream smoke inhaled by the smoker. The 1986 Surgeon General's report: *The Health Consequences of Involuntary Smoking. A Report of the Surgeon General* concluded that ETS has a toxic and carcinogenic potential similar to that of the mainstream smoke (7). The more recent 2006 Surgeon General's report, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General,* reaffirms and strengthens the findings of the 1986 report, and expands the list of diseases and adverse health effects caused by ETS (8).

ETS is a known human carcinogen (2). Women who are exposed to ETS are at risk for lung cancer and cardiovascular diseases (9). Prenatal or postnatal ETS exposure is related to numerous adverse health outcomes among infants and children, including sudden infant death syndrome (SIDS) (10, 11), upper respiratory infections (12), periodontal disease (13), increased severity of asthma/wheezing (12), metabolic syndrome (14), decreased cognitive function (15), lower birth weight and smaller head circumference (16). Infants born to women exposed to ETS during pregnancy have a small decrease in birth weight and a slightly increased risk of intrauterine growth retardation compared to infants of unexposed women (17).

Studies suggest that the health effects of ETS exposure at a young age could last into adulthood. These include cancer (18), specifically lung cancer (19, 20), and cardiovascular diseases (14, 21, 22,). There is strong evidence that ETS exposure to the fetus and/or infant results in permanent lung damage (23, 24, 25, 26).

ETS exposure increases inflammation and oxidative stress (27, 28, 29). Inflammation is associated with asthma (30), cardiovascular diseases (31, 32), cancer (33), chronic obstructive pulmonary disease (34), and metabolic syndrome (14, 35). PAHs are the major class of compounds that contribute to the ETS-related adverse health outcomes. These compounds possess potent carcinogenic and immunotoxic properties that aggravate inflammation.

Oxidative stress is a general term used to describe the steady state of oxidative damage caused by highly reactive molecules known as free radicals. The free radicals can be generated both during the normal metabolic process and from ETS and other environmental pollutants. When free radicals are not neutralized by antioxidants, they can cause oxidative damage to the cells. This damage has been implicated in the cause of certain diseases. ETS provokes oxidant damage similar to that of active smoking (36).

Antioxidants may modulate oxidative stress-induced lung damage among both smokers and non-smokers (22, 27-29, 37-40). Fruits and vegetables are the major food sources of antioxidants that may protect the lung from oxidative stress (1). Research indicates that consuming fruits and vegetables is more beneficial than taking antioxidant supplements (1). This suggests that other components of fruits and vegetables may be more relevant in protecting the lung from oxidative stress. Dietary fiber is also thought to contribute to the beneficial health effects of fruits and vegetables (1).

The Institute of Medicine (IOM) reports that an increased turnover in vitamin C has been observed in nonsmokers who are regularly exposed to tobacco smoke (41). The increased turnover results in lowered vitamin C pools in the body.

Although there are insufficient data to estimate a special requirement for non-smokers regularly exposed to ETS, the IOM urges those individuals to ensure that they meet the Recommended Dietary Allowance for vitamin C (36, 41).

The WIC food package supplements the participant intake of vitamin C. In addition, many WIC State Agencies participate in the WIC Farmers' Market Nutrition Program, which provides coupons for participants to purchase fresh fruits and vegetables. WIC Program benefits also include counseling to increase fruit and vegetable consumption, and to promote a healthy lifestyle, such as protecting participants and their children from ETS exposure. WIC staff may also make appropriate referrals to participants, and/or their caregivers, to other health and social services, such as smoking cessation programs.

Clarification

In a comprehensive scientific report, the Surgeon General concluded that there is no risk-free level of exposure to secondhand smoke (8). However, for the purpose of risk identification, the definition used for this risk criterion is based on the Centers for Disease Control and Prevention (CDC) Pediatric Nutrition Surveillance System (PedNSS) and the Pregnancy Nutrition Surveillance System (PNSS) questions to determine Environmental Tobacco Smoke (ETS) exposure:

- Does anyone living in your household smoke inside the home? (infants, children)
- Does anyone else living in your household smoke inside the home? (women)

Because the definition used by other Federal agencies for ETS exposure is specific to "inside the home" and has been validated (3), the definition used for WIC eligibility must also be as specific. In addition, FNS encourages the use of the PedNSS and PNSS ETS exposure questions for WIC nutrition assessment.

There are other potential sources of ETS exposure, such as work and day care environments. However, no other validated questions/definitions could be found that were inclusive of other environments and applicable to WIC.

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